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Service
Manual

CULLIGAN MEDALLIST SERIES™
AUTOMATIC WATER CONDITIONER MODELS FROM 2002

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Printed in USA

Attention Culligan Customer:

The installation, service and maintenance of this equipment should be rendered by a qualified and trained service technician. Your local independently operated Culligan dealer employs trained service and maintenance personnel who are experienced in the installation, function and repair of Culligan equipment. This publication is written specifically for these individuals and is intended for their use.

We encourage Culligan users to learn about Culligan products, but we believe that product knowledge is best obtained by consulting with your Culligan dealer. Untrained individuals who use this manual assume the risk of any resulting property damage or personal injury.

⚠ WARNING - PRIOR TO SERVICING EQUIPMENT, DISCONNECT POWER SUPPLY TO PREVENT ELECTRICAL SHOCK.

⚠ WARNING - IF INCORRECTLY INSTALLED, OPERATED OR MAINTAINED, THIS PRODUCT CAN CAUSE SEVERE INJURY. THOSE WHO INSTALL, OPERATE, OR MAINTAIN THIS PRODUCT SHOULD BE TRAINED IN ITS PROPER USE, WARNED OF ITS DANGERS, AND SHOULD READ THE ENTIRE MANUAL BEFORE ATTEMPTING TO INSTALL, OPERATE OR MAINTAIN THIS PRODUCT.

IF THIS EQUIPMENT IS TO BE USED IN THE TREATMENT OF DRINKING WATER, THE WATER MUST BE MICROBIOLOGICALLY SAFE.

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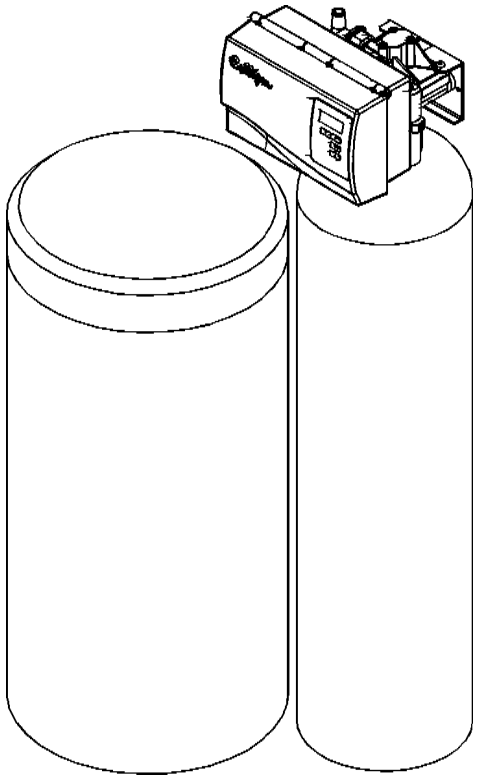

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Introduction

The Culligan Medallist Series™ Water Softeners are tested and validated by WQA and certified by UL against ANSI/NSF Standard 44 for the effective reduction of calcium and magnesium along with Barium and Radium 226/228*.

ANSI/NSF 44
Water Softener
81WN

Because the ability of the unit to remove Barium and Radium is based upon reducing hardness to less than 1 gpg, effective hardness reduction should be periodically verified. Hardness sample kits are available through your local Culligan Dealer.

For installations in Massachusetts, Massachusetts Plumbing Code 248 CMR shall be adhered to. Consult your licensed plumber for installation of this system.

SAFE PRACTICES

Throughout this manual there are paragraphs set off by special headings.

NOTICE: Notice is used to emphasize installation, operation or maintenance information which is important, but does not present any hazard.

Example: NOTICE: *The nipple must extend no more than 1 inch above the cover plate.*

⚠ **CAUTION**: Caution is used when failure to follow directions could result in damage to equipment or property. Example:

⚠ **CAUTION:** ***Disassembly while under water pressure can result in flooding.***

⚠ **WARNING**: Warning is used to indicate a hazard which could cause injury or death if ignored. Example:

> ⚠ **WARNING! ELECTRICAL SHOCK HAZARD! UNPLUG THE UNIT BEFORE REMOVING THE COVER OR ACCESSING ANY INTERNAL CONTROL PARTS.**

SERIAL NUMBERS

The control valve serial number is located on the back of the control.

The media tank serial number is located on the top surface of the tank.

NOTICE: *Do not remove or destroy the serial number. It must be referenced on request for warranty repair or replacement.*

This publication is based on information available when approved for printing. Continuing design refinement could cause changes that may not be included in this publication.

** Verified utilizing hardness surrogate per ANSI/NSF Standard 44.*

Specifications

CULLIGAN MEDALLIST SERIES WATER CONDITIONER WITH TIMECLOCK OR SOFT MINDER METER

	8" MODEL	30[3] MODEL	45[3] MODEL
Control Valve Type	5-cycle Reinforced Thermoplastic	5-cycle Reinforced Thermoplastic	5-cycle Reinforced Thermoplastic
Overall Conditioner Height	51 in 1,295 mm	49 in 1,245 mm	63 in 1,600 mm
Media Tank Dimensions (Dia. x Ht.)	8 x 44 in 203 x 1,118 mm	10 x 40 in 254 x 1,016 mm	10 x 54 in 254 x 1,372 mm
Salt Storage Tank Dimensions (Dia. x Ht.)	16 x 43 in 457 x 1,092 mm	18 x 43 in 457 x 1,092 mm	18 x 43 in 457 x 1,092 mm
	18 x 43 in 457 x 1,092 mm		
Exchange Media, Type and Quantity	Cullex® Media, 0.7 ft[3]	Cullex Media, 1.0ft[3]	Cullex Media, 1.5 ft[3]
Underbedding, Type and Quantity	Cullsan® Underbedding, 6 lb.	Cullsan Underbedding, 8 lb.	Cullsan Underbedding, 8 lb.
Exchange Capacity @ Salt Dosage Per Recharge[1]	18,300 gr @ 4 lb	20,200 gr @ 5.0 lb	24,900 gr @ 6 lb
	25,100 gr @ 9.0 lb	29,400 gr @11 lb	39,200 gr @14 lb
	27,500 gr @ 12 lb	35,000 gr @17 lb	43,500 gr @ 20 lb
Efficiency at Rated Sales Dosage[5]	4 lb. salt dosage: 4570 gr./lb.	5 lb. salt dosage 4050 gr./lb.	6 lb. salt dosage 4150 gr./lb.
Freeboard to Media[2]	20.5 - 21.5 in	17 - 18 in	19.75 - 21.75 in
Freeboard to Underbedding[3]	42.0 - 42.5 in	39.6 - 40.1 in	53.8 - 54.3 in
Salt Storage Capacity	250 lb or 375 lb	375 lb	375 lb
Rated Service Flow @ Pressure Drop	5.9 gpm @ 12 psi	7.2 gpm @ 12 psi	7.0 gpm @ 13 psi
Total Hardness, Maximum	75 gpg	99 gpg	99 gpg
Total Iron, Maximum (dissolved)	5 ppm	5 ppm	5 ppm
Hardness to Iron Ratio, Minimum	8 gpg to 1 ppm 140 mg/L to 1 mg/L	8 gpg to 1 ppm 140 mg/L to 1 mg/L	8 gpg to 1 ppm 140 mg/L to 1 mg/L
Operating Pressure	20 - 125 psi 140 - 860 kPa	20 - 125 psi 140 - 860 kPa	20 - 125 psi 140- 860 kPa
Operating Pressure (Canada)	20 - 90 psi 140 - 620 kPa	20 - 90 psi 140 - 620 kPa	20 -90 psi 140 - 620 kPa
Operating Temperature	33 - 120°F 1 - 50°C	33 - 120°F 1 - 50°C	33 - 120°F 1 - 50°C
Electrical Requirements	24V/60 Hz	24V/60 Hz	24V/60 Hz
Electrical Power Consumption, Min./Max.	3 Watts/35 Watts	3 Watts/35 Watts	3 Watts/35 Watts
Drain Flow, Maximum[4]	1.1 gpm	2.0 gpm	2.1 gpm
Recharge Time, Average	85 min	64 min	64 min
Recharge Water Consumption	23.3 gal	61 gal	65 gal

1 Capacities and corresponding salt dosages pertain to low hardness waters. Capacities given per recharge
2 Measured from top of media to top of inlet fitting (backwashed and drained)
3 Measured from top of underbedding to top of inlet fitting
4 Backwash at 120 psi (830 kPa)
5 Efficiency rating only valid at stated salt dosage on Soft-Minder® models and is efficiency rated according to ANSE/ NSF Standard 44.

Familiarization

CONTROL

The Culligan Medallist Series™ water softener uses the same power valve control as in our Culligan® Mark 89/812 models. It can be programmed as either a time clock or Soft-Minder® meter model. Each model has its own programming parameters which can be set to control the operation and regeneration of the system. These functions are outlined in Table 1.

TABLE 1

Function	Time Clock	Soft-Minder Meter
Time of Day	YES	YES
Time of Regen.	YES	YES
Salt Dosage	YES	YES
Backwash Time	YES	YES
Brine Rinse Time	YES	YES
Gallons Capacity/Regen. Interval	YES	YES
Forced Regen. Interval	NO	YES*
Lock/Unlock display	YES	YES

* When Time Clock Backup is set to "ON".

CIRCUIT BOARD

The AccuSoft™ microprocessor circuit board controls every function of the Culligan Medallist Series water softener. This board has several unique features which allows it to perform a variety of functions. Familiarization of the board is essential for a thorough understanding of the softener.

The AccuSoft circuit board has a set of default settings that the microprocessor will reset to whenever a meter is attached or removed from the control. Table 2 is a list of the default microprocessor settings.

It is recommended to always disconnect the power from the circuit board prior to replacing meter cable so that the programmed settings are not lost.

TABLE 2

1	Time of Day	12:00 P.M.
2	Time of Regeneration	2:00 A.M.
4	Salt Dosage	10 lbs.
5	Backwash Time	10 min.
6	Brine Rinse	71 min.
8	Regeneration Interval	3 days or 870 gallons
10	Display Lock Out	Disabled

AUXILIARY CONNECTIONS

Refer to Figure 1 for all circuit board connections. Power terminals are located along the lower section of the circuit board. The connection marked 'MAIN' is for the main wire harness. The Soft-Minder connection is located in the upper left side of the board. Next to the meter connection is a connection marked 'BATT', which is for the optional battery back-up. All terminals are clearly marked to ease installation.

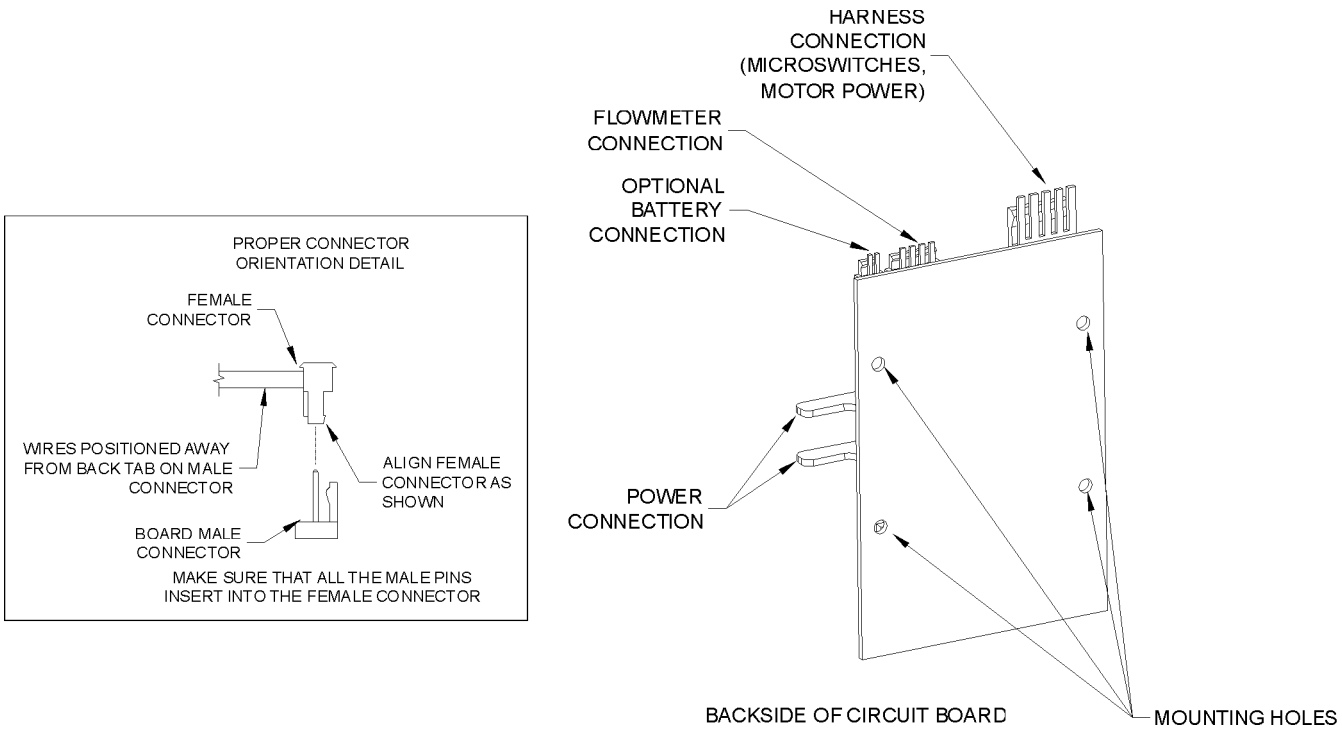


FIG. 1

SOFT-MINDER® OPERATION

The Soft-Minder meter utilizes a turbine impeller to accurately monitor the customer's water usage. After a predetermined amount of water has passed through the system, the microprocessor will signal a regeneration. The "REG" enunciator will light at this point. The unit will perform a standard regeneration cycle at the preset time, unless the programming option "dip2" is changed from "DEL" to "Id". When programming option "dip2" is changed from "DEL" to "Id", a regeneration will begin immediately.

The programming of the Soft-Minder provides several settable variables, the Time-of-Day, Time-of-Regeneration, Salt Dosage, Backwash Time, Brine/Rinse Time, Gallons to Signal and Timeclock Backup, if active. Refer to the programming section for further information on programming the microprocessor.

TIMECLOCK OPERATION

When the microprocessor is set-up as a time clock unit, the Culligan® Medallist control will regenerate at fixed intervals. The regeneration interval can be set anywhere from 1 to 42 days.

The programming for the time clock models is limited to Time-of-Day, Time-of-Regeneration, Salt Dosage, Backwash Time, Brine/Rinse Time, and the Regeneration Interval. Refer to the programming section for further information on programming the microprocessor.

REGENERATION

There are several conditions that will cause the control to trip a regeneration. The "REG" enunciator will light when the control has signaled for a regeneration. The "REG" enunciator will flash while the control is in regeneration. The following are conditions that will call for regeneration, assuming "dip2" has been set to "DEL":

1. When the Soft-Minder meter has recorded the passage of a predetermined number or gallons
2. When the time clock has counted past the set number of days.
3. At the preset time, when the number of days without a regeneration is equal to the Timeclock Backup setting.
4. At the preset time, after the "REG" button is depressed once. "REG" will light.
5. Immediately, when the "REG" button is depressed for three seconds. "REG" will light and blink.
6. Immediately, if power to the unit has been off for more than 3 hours and time of day has been returned.

If "dip2" is set to "Id", the unit will begin a regeneration immediately for instances 1 and 2. With "dip2" set to "del", the regeneration will not begin until the preset regeneration time.

Note: *If set to immediate mode as timeclock or timeclock backup, the unit will initiate regeneration at 12:00 AM. In the delay mode, "REG" indicator will light at 12:00 AM and regeneration will occur at delayed time.*

DISPLAY LOCKOUT

The Culligan Medallist Series™ control is equipped with a feature which will allow you to protect the programmed settings from tampering by unauthorized individuals. When the lockout feature is activated, the only parameters which can be adjusted are the Time-of-Day and the Time of Regeneration. Refer to the "Setting of the Microprocessor" for activating this feature.

POWER LOSS

The AccuSoft® circuit board is equipped with a Hi-Cap Capacitor and EEPROM memory chip. The capacitor is capable of maintaining the time, for at least two days (masked chip), in the event of a power outage. The EEPROM ensures that the individual programming parameters of the softener are not lost.

If the power outage lasts long enough to drain the Hi-Cap Capacitor, the control will flash "12:00 PM" when power is returned to the control. The unit will continue to keep time from the moment power is restored, and will initiate a full regeneration at the preset regeneration time. The time of day will need to be reset in order to return the regeneration to its preset time.

FAILURE MODE

There are certain conditions that can be interpreted by the circuit board as a failure of the drive motor or motor position switch. Upon failure detection the control will cease further operation. A telephone hand set symbol will be shown in the upper left corner of the display and the error code will be shown. Listed below are the different error codes.

1. **Motor Always Turning**
   Error code "E1" occurs when the circuit board detects changes in the motor program switch when the motor is not supposed to be turning. The phone icon and "E1" will be lit in the display.
2. **Motor Never Turns**
   The Culligan Medallist Series control is equipped to detect no change in the motor position when the motor is supposed to be turning (motor or piston locked in a frozen position). The AccuSoft circuit board will apply power to the motor for 20 seconds. If there is no change in the motor homing or position switch, the control will power down for 1 minute. The circuit board will repeat this procedure two more times in an attempt to remove the obstruction. If no movement has been detected, the control will permanently power down and a phone icon and an "E2" will appear in the display.
3. **Homing Error**
   Error code "E3" occurs when the circuit board detects when the control is unexpectedly in the home position. The phone icon and "E3" will be lit in the display.

Error Display Cancellation
The error code display can be removed by removing the power to the control for 1 minute. After clearing an error condition, the control will default to the factory settings when power is restored.

The mircoprocessor can be set in two distinct operation modes, Soft-Minder® meter or Timeclock. As shipped from the factory, the control is set for 8" Timeclock operation.

CAPACITY AND SALT SETTINGS

As mentioned previously, the softener will regenerate once the amount of water equal to the treated water volume set point has passed through the turbine for meter models or after a fixed time interval for timeclock models. Regeneration is either delayed until the selected regeneration time or immediate depending on how the microprocessor is programmed. Before completing the programming, the following information must be determined:

1. Compensated Water Hardness.

If your water supply contains iron, compensate for it by the following procedure:

1. Multiply the iron by 0.1 and add the result to the hardness.
   Example: (3 ppm of iron x 0.1) + 25 gpg of hardness = 25.3 gpg of total hardness
2. Choose the % capacity you want and refer to the table below for the appropriate multiplier.
   Example: 67% capacity gives a multiplier of 1.5.

TABLE 3

% Capacity	50%	67%	75%
Multiplier	2	1.5	1.33

3. Multiply the result from Step 1 by the multiplier chosen in Step 2. This is the compensated hardness.
   Example: 25.3 gpg total hardness x 1.5 = 38 gpg compensated hardness.
4. Use the effective hardness for sizing and to determine salt dosage and regeneration frequency.
5. The forced regeneration feature should be used for Soft-Minder meter operation to ensure the resin bed does not become iron fouled due to lack of water flow. See "Programming the Option Settings" for the forced regeneration feature.

2. Salt Dosage

From Table 4, select the salt dosage at which the softener will be operated.

- Low Setting — Maximum salt efficiency, more frequent regeneration, reduced overall softening capacity.
- Medium Setting — Good combination of efficiency and overall softening capacity.
- High Setting — Maximum softening capacity, less frequent regeneration, and reduced salt efficiency. Recommended whenever iron is present and for hardness levels above 30 Grains Per Gallon, or high volume water usage.

TABLE 4 - SALT DOSAGE

Salt Dosage	Capacity 8" ft³	Capacity 30 ft³	Capacity 45 ft³	160 lb. Brine Tank "A" Dimension Secondary (Only) in.	160 lb. Brine Tank "A" Dimension Secondary (Only) (cm)	250 lb. Brine Tank "A" Dimension Secondary in.	250 lb. Brine Tank "A" Dimension Secondary (cm)	250 lb. Brine Tank "A" Dimension Primary in.	250 lb. Brine Tank "A" Dimension Primary (cm)	375 lb. Brine Tank "A" Dimension Secondary in.	375 lb. Brine Tank "A" Dimension Secondary (cm)	375 lb. Brine Tank "A" Dimension Primary in.	375 lb. Brine Tank "A" Dimension Primary (cm)
4	18,300	X	X	7-3/4	19.7	6-5/8	16.8	4-5/8	11.7	5-1/2	14.0	3-1/2	8.9
5	20,000	20,000	20,000	9-1/2	24.1	8	20.3	6	15.2	6-1/2	16.5	4-1/2	11.4
6	22,000	22,500	23,500	11-1/4	28.6	9-3/8	23.8	7-3/8	18.7	7-1/2	19	5-1/2	14
7	23,200	24,400	26,500	13	33	10-7/8	27.6	8-7/8	22.5	8-1/2	21.6	6-1/2	16.5
8	24,100	25,700	29,000	14-3/4	37.5	12-1/4	31.1	10-1/4	26	9-1/2	24.1	7-1/2	19
9	25,100	27,000	31,300	16-1/2	42	13-5/8	34.6	11-5/8	29.5	10-1/2	26.7	8-1/2	21.6
10	26,100	28,300	33,300	18-1/4	46.3	15	38.1	13	33	11-1/2	29.2	9-1/2	24.1
11	26,800	29,400	35,000	20	51	16-3/8	41.6	14-3/8	36.5	12-1/2	31.7	10-1/2	26.7
12	27,500	30,500	36,500	21-3/4	55.2	17-3/4	45.1	15-3/4	40	13-1/2	34.3	11-1/2	29.2
13	X	31,500	38,400	21-1/2	59.7	19-1/8	48.6	17-1/8	43.5	14-1/2	36.8	12-1/2	31.7
14	X	32,500	39,200	25-1/4	64.1	20-1/2	52.1	18-1/2	47	15-1/2	39.4	13-1/2	34.3
15	X	33,300	40,400	—	—	21-7/8	55.5	19-7/8	50.5	16-1/2	42	14-1/2	36.8
16	X	34,100	41,200	—	—	23-1/4	59	21-1/4	54	17-1/2	44.5	15-1/2	39.4
17	X	35,000	41,800	—	—	24-5/8	62.5	22-5/8	57.5	18-1/2	47	16-1/2	42
18	X	X	42,400	—	—	26	66	24	61	19-1/2	49.5	17-1/2	44.5
19	X	X	42,900	—	—	27-3/8	69.5	25-3/8	64.5	20-1/2	52.1	18-1/2	47
20	X	X	43,500	—	—	28-3/4	73	26-3/4	68	21-1/2	54.6	19-1/2	49.5

3. Treated Water Volume Set Point

Calculate the treated water volume set point using the following information:

- Softening capacity — Grains (based upon salt dosage setting).
- Compensated hardness of water supply — Grains Per Gallon
- Estimated daily water usage — Gallons Per Day (refer to Table 5)

TABLE 5 - Daily Water Usage

Persons in Household	Gallons Per Day
2	150
3	225
4	300
5	375
6	450
7	525
8	600
9	675
10	750

Example - Meter: Softener Model Medallist 2M

Capacity @ 9 lb. Salt Dosage: 25,100 Grains
Compensated Water Hardness: 19 Grains Per Gallon
Estimated Daily Water Usage: 300 Gallons Per Day

$$\text{Treated Water Volume Set Point} = \frac{\text{Softener Capacity}}{\text{Compensated Hardness}} \text{ — Water Usage}$$

Softening Capacity	25,100	Grains
Divide by Compensated Hardness	÷ 19	Grains per Gallon
Result is total number of gallons of soft water per regeneration	1,321	Gallons
Subtract daily Water Usage (needed as a reserve to ensure continuous soft water until regeneration occurs).	— 300	Daily Water Usage (One Day Supply)
	1,021	Gallons
Round down to nearest ten for Treated Water Volume Set Point	1,020	Gallon Setting

Set "CAPG" to 102

Example - Timeclock: Softener Model Medallist 2
Capacity @ 9 lb. Salt Dosage: 25,100 Grains
Compensated Water Hardness: 19 Grains Per Gallon
Estimated Daily Water Usage: 300 Gallons Per Day

$$\text{Treated Water Volume Set Point} = \frac{\text{Softener Capacity}}{\text{Compensated Hardness}} \text{ — Water Usage}$$

Softening Capacity	25,100	Grains
Divide by Compensated Hardness	÷ 19	Grains per Gallon
Result is total number of gallons of soft water per regeneration	1,321	Gallons
Subtract daily Water Usage (needed as a reserve to ensure continuous soft water until regeneration occurs).	— 300	Daily Water Usage (One Day Supply)
	1,021	Gallons
Divide by daily water usage	÷ 300	
	3.4	Days
Round down to nearest day	3.0	Days

Set "CAP" to 3

Use the following worksheets to calculate and record the proper settings.

Treated Water Volume Set Point Work Sheet - Meter Models

1.	Enter Softening Capacity		
2.	Divide by Compensation Hardness	÷	
	Result is Total Gallons of Soft Water Per Regeneration	=	
3.	Subtract Daily Water Usage (Reserve	—	
	Result	=	

Round down to nearest ten for Treated Water Volume Set Point ____ Gallons

Treated Water Volume Set Point Work Sheet - Timeclock Models

1.	Enter Softening Capacity		
2.	Divide by Compensation Hardness	÷	
	Result is Total Gallons of Soft Water Per Regeneration	=	
3.	Subtract Daily Water Usage (Reserve	—	
4.	Divide by Daily Water Usage	÷	
	Result	=	

Round down to nearest ten for days between regeneration set point ____ Days

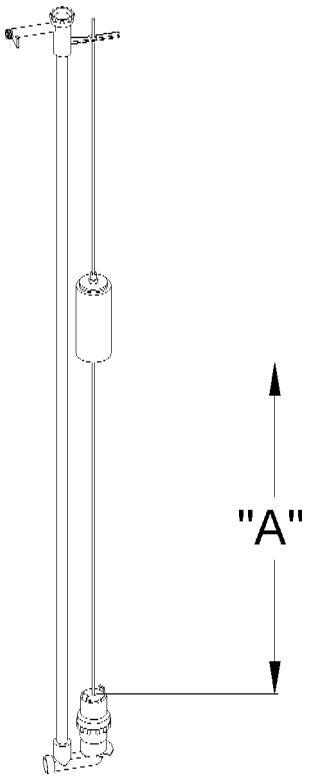
Note: All Softening capacity is based on new Cullex® resin and using sodium chloride as the regenerate: If potassium chloride is used reduce the rated softening capacity by 20%.

BRINE VALVE "A" DIMENSION

The brine valve contains a float-actuated safety shut-off device to prevent overflow of the brine tank in the unlikely case of an electrical or mechanical failure during the brine tank refill cycle.

It is recommended that the brine valve float be used as intended, that is, as a secondary, safety shut off. Remember, the timer mechanism provides the primary refill shut-off. To use the float as a safety shut-off, refer to Table 4 for the salt dosage and brine tank size being used. The "A" dimension is the distance between the filter screen and the bottom of the float (Figure 2) when the float stem is in its fully raised position; adjust the float and rubber grommets accordingly.

FIG. 2



Make sure the inlet water supply is turned off, then supply power to the timer. The display will power up flashing "12:00 PM" and the motor will energize and cycle the control, without stopping, to the home position. This is required to ensure that the control is in the home position.

The timer uses four buttons:

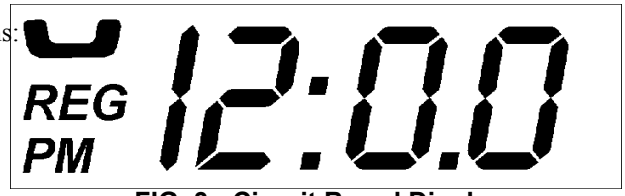


FIG. 3 - Circuit Board Display

1. STATUS: Advance timer through display options.
2. PLUS SIGN "+": Increase the setting.
3. MINUS SIGN "-": Decrease the setting.
4. REGEN.: Initiate a manual regeneration.

PROGRAMMING THE OPTION SETTINGS

The microprocessor has several programming options that can be changed for various additional functions. Listed are the functions for the programming options used on the Culligan Medallist Series$_{TM}$ control.

Dip Switch	Function	Default Position
1	Service or Test	Service
2	Delay or Immediate Regeneration	Delayed Regeneration
3	Softener or Filter	Softener
4	Time Clock Backup	OFF
5	English or Metric	English
6	12 or 24 Hour Clock	12 Hour
7	3/4" or 1" Meter	3/4" Meter

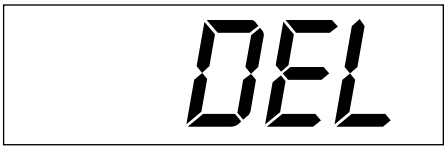
1 Service or Test Mode

Press and hold the "STATUS" key until "dIP1" appears in the display. "dIP1" will blink for 3 seconds and then the display will show the status of this option (SEr or tES). Toggle the feature with the "+" or "-" key.

Note: Pressing "STATUS" after changing option to test mode will place the control in test mode. After testing is complete press and hold "STATUS" for 3 seconds to return to "dIP1" setting. Placing the unit in test mode will not change any of the programmed values.

2 Delay or Immediate Regeneration

Press the "STATUS" key. The display will blink "dIP2" for 3 seconds and then show the current status. Toggle between "DEL" (Delay) and "Id" (Immediate) with the "+" or "-" key.



Note: Changing this setting will not change any of the programmed value with the exception that Step #2, time of regeneration will be ignored when set to immediate.

3 Softener or Filter

Press the "STATUS" key. The display will blink "dIP3" for 3 seconds and then show the current status. Toggle between "SOF" (Softener) and "FIL" (Filter) with the "+" or "-" key.

Note: Changing this setting will cause the unit to load the Filter or Softener defaults.

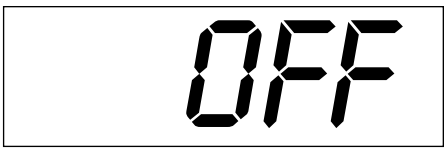
4 Timeclock Backup

Press the "STATUS" key. The display will blink "dIP4" for 3

seconds and then show the current status. Toggle between "OFF" (Timeclock backup is off) and "ON" (Timeclock backup is on) with the "+" or "-" key.

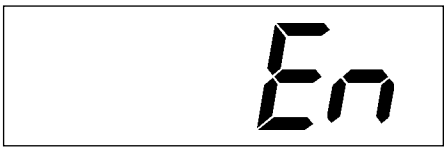
Note: *Changing this setting will not change any of the programmed values and will load the default Timeclock Backup value of 3 days. Programming step 7 will be activated when this is set to On.*

Note: *This option will only be available when the flowmeter is plugged into the control*



5 English or Metric

Press the "STATUS" key. The display will blink "dIP5" for 3 seconds and then show the current status. Toggle between "En" (English units) and "MET" (Metric units) with the "+" or "-" key.



6. 12 or 24 Hour Clock

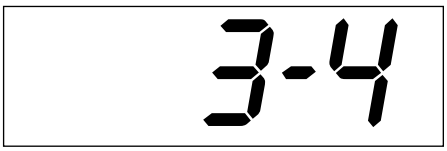
Press the "STATUS" key. The display will blink "dIP6" for 3 seconds and then show the current status. Toggle between "12 Hr" (12 hour clock) and "24 Hr" (24 hour clock) with the "+" or "-" key.

7. 3/4" or 1" Meter

Press the "STATUS" key. The display will blink "dIP7" for 3 seconds.

Do not change setting from "3-4"

Note: The 3/4" meter setting is to be used with the Medallist Series softener. The 1" meter setting is for future models.



SETTING THE MICROPROCESSOR

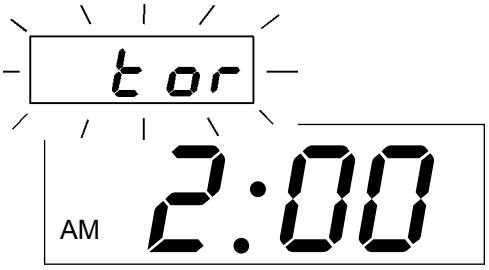
The microprocessor senses when it is installed as a Soft-Minder® control. Adding or removing any connection to the board will automatically reset the microprocessor to the factory settings.

Step 1 – Programming Time of Day

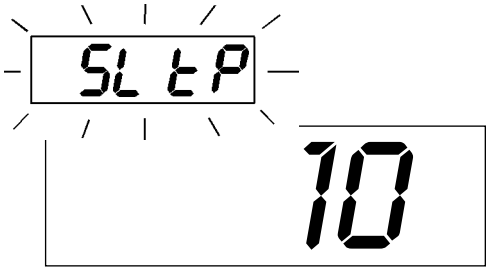
Press the "STATUS" key.
The display will blink "tod" for 3 seconds and then change to time of day with the "minutes" digits blinking.
Adjust the "minutes" digits with the "+" or "-" keys.
Press the "REGEN" key to blink the "hours" digits.
Adjust the "hours" digits with the "+" or "-" keys.
Press the "REGEN" key to cycle back to "minutes"
Note: *The "hours" setting scrolls through 1-12 AM and 1-12 PM. Make sure the proper AM or PM indicator is shown when setting the time.*

Step 2 – Programming Regeneration Time

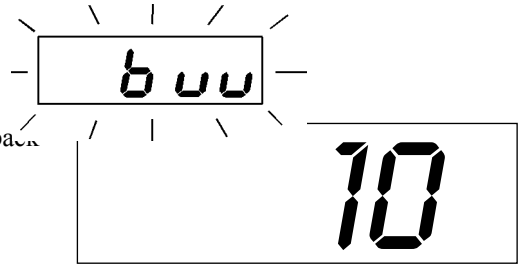
Press the "Status" key after setting the time of day.
The display will blink "tor" for 3 seconds and then change to the time setting with the "ones" digit blinking.
Adjust regeneration time as time of day above.
Note: This option will not show if the "dIP 2" option is set to immediate.



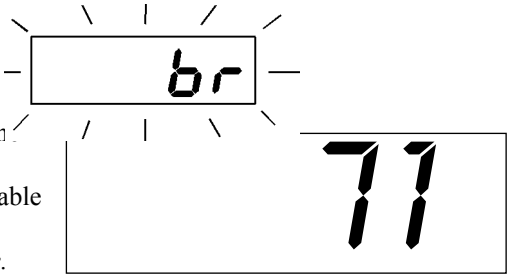
Step 3 – Programming Salt Dosage
Press the "Status" key after programming regeneration time.
The display will blink "SLtP" if set to English or "SLtG" if set to Metric for 3 seconds and then display the salt dosage.
Adjust the setting with the "+" or "-" key (3-24 lbs.)(1-10 kgs.)
Note: This option will not show if the control is set to Filter mode.



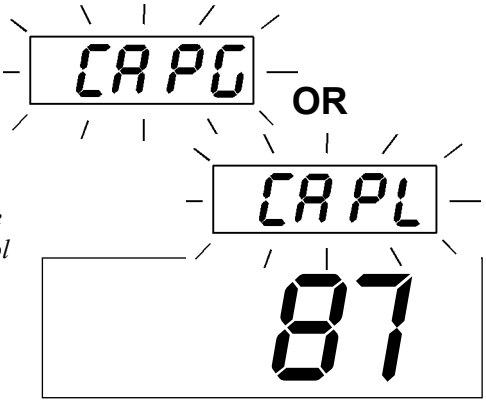
Step 4 – Programming Backwash Time
Press the "Status" key after programming salt dosage.
The display will blink "bw" for 3 seconds and then display the back wash time in minutes.
Adjust the setting with "+" or "-" key. (1-40 minutes)



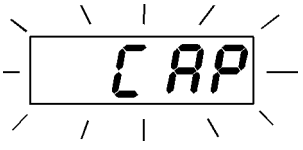
Step 5 – Programming Brine Draw/Slow Rinse Time
Press the "Status" key after programming the backwash time.
The display will blink "br" for 3 seconds and then display the brine draw/slow rinse time in minutes.
Adjust the setting with the "+" or "-" key. (35-99 minutes). See Table 5 for suggested brine draw/slow rinse times.
Note: *This option will not show if the control is set to Filter mode.*



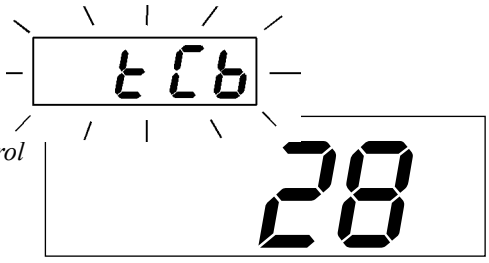
Step 6 – Programming Gallons (Liters) or Days to Regeneration
Meter Mode —
Press the "Status" key after programming the brine draw/slow rinse time.
The display will blink "CAPG" ("CAPL") for 3 seconds and then display the gallons or liters set point.
Adjust the setting with the "+" or "-" key. (10-9990 Gallons)
(40-37000 Liters)
Note: The programmed value must be multiplied by 10 to obtain the actual setting. For example, if 87 is shown in the display, the control will regenerate after 870 gallons have passed through the meter.



Timeclock Mode —
Press the "Status" key after programming the brine draw/slow rinse time.
The display will blink "CAP" for 3 seconds and then display the number of days between regenerations.
Adjust the setting with the "+" or "-" key. (1-42 days)

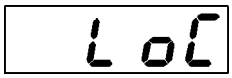


Step 7 – Programming Time Clock Backup
Press the "Status" key after programming the capacity.
The display will blink "tCb" for 3 seconds and then display the backup number of days between regenerations.
Adjust the setting with the "+" or "-" key. (1-42 days)
Note: *This option will only show if a meter is plugged into the control and the timeclock backup option is turned on.*



Exiting Program Mode
From Step 6 (or step 7 if it is active) press the “Status” key.
The display will go blank.
Press the “Status” key again to exit programming.
Note: *The control will exit the programming mode if no key press activity takes place within one minute.*

Locking the Programmed Menu
Press and hold the “+” key for 3 seconds while in the service mode.
The display will show the status of the lock feature. (“LoC” or “unL”)
Adjust with the “+” or “-“ key.
Press the “STATUS” key to return to the service mode.
Note: *While the programmed menu is locked (“LoC”) all of the programming menu items will display, however only the time of day and time of regeneration can be changed.*



Note: *If programming times out, values will not be saved. The “Status” key must be pressed to save values.*

TABLE 6 - Suggested Brine Draw/Slow Rinse Times

Salt Dosage	Brine Draw/Slow Rinse Time (Minutes)	
	8" Tank	10" Tank
3	53	—
4	55	—
5	57	40
6	59	42
7	62	44
8	65	46
9	68	48
10	71	50
11	74	52
12	76	53
13	78	55
14	80	56
15	82	58
16	—	59
17	—	61
18	—	62
19	—	64
20	—	65
21	—	67
22	—	68
23	—	70
24	—	71

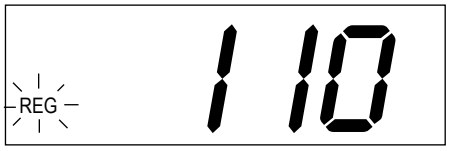
Note: Values are for 50 psi pressure. Minutes should be adjusted for lower and higher pressures to ensure that the brine is fully rinsed out.

Manual Cycling

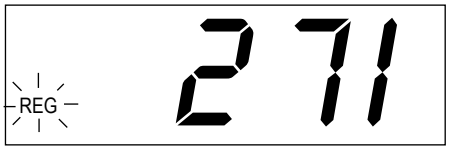
The Culligan® microprocessor can be indexed through the various regeneration stages. For all steps, the cycle numbers do not appear, or change, until the motor stops.

1. Press the status button to move past the programming steps until the display is blank. From blank display press the "+" key. An "H" will appear in the display. The control is in the HOME position.

2. Press and hold the regen button. The 'REGEN' icon will blink, and the motor will advance the control. A '1' will appear. The unit is now in the BACKWASH position. The numbers to the right indicates the time remaining for the cycle.



3. Press the "+" key. A '2' will appear in the display, along with the cycle time remaining. The control is in the BRINE DRAW/SLOW RINSE cycle.



4. Press "+" key. A '3' will appear in the display, along with the cycle time remaining. The control is now in the FAST RINSE/ BRINE REFILL cycle.

5. Press the "+" key. An 'H' will appear in the display. The unit is in the HOME position. The 'REGEN' enunciator is no longer blinking.

6. Press the status key. Time-of-Day appears in the display.

Note: If the "+" key is pressed to cycle the value from position "3" to "Home", the # regen counters will not be updated.

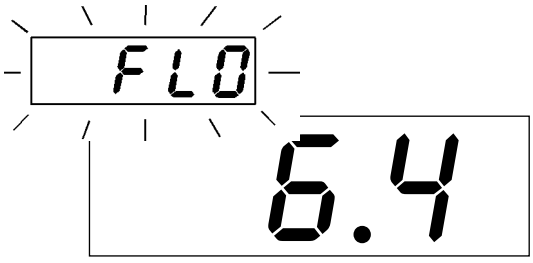
Service Check

The service mode allows one to view the instantaneous flow rate, the gallons remaining before the softener signals for regeneration, the number of regenerations in the past 14 days, the total number of regenerations the control has cycled through and the number of days since the last regeneration.

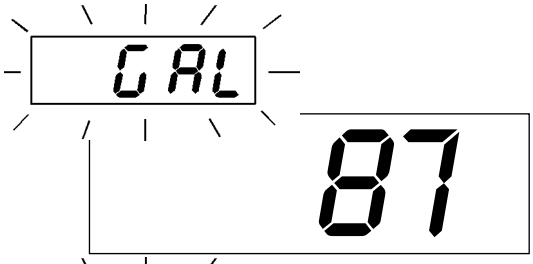
To enter the service check mode, follow these steps:

1. From the Blank display:

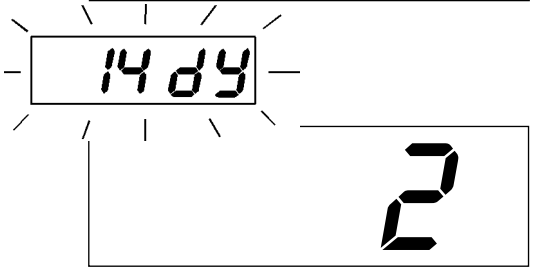
2. Press "-" key. The display will blink "FLO" for 3 seconds and then display the gallons per minute flow rate. This screen will update the current meter reading every 6 seconds.
   Note: *This display is only active if the flowmeter is connected to the valve.*



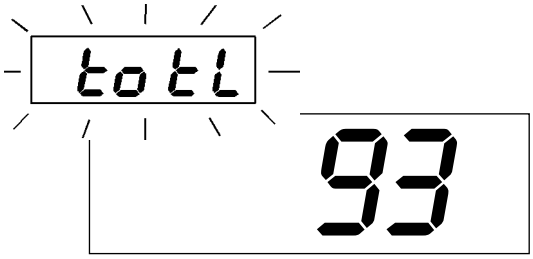
3. Press "-" key. The display will blink "GAL" for 3 seconds and then displays the gallons remaining before the unit signals for regeneration (multiply the displayed number by 10).
   Note: *This display is only active if the flowmeter is connected to the valve.*



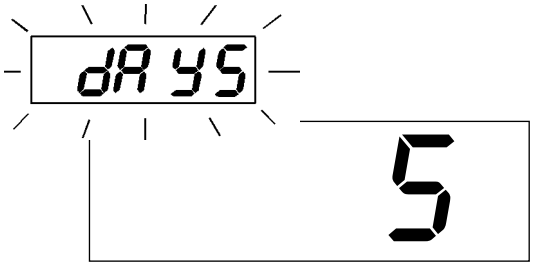
4. Press the "-" key. The display will blink "14dY" for 3 seconds and then display the number of regenerations that have occurred in the last 14 days.



5. Press the "-" key. The display will blink "totL" for 3 seconds and then display the total number of regenerations this control has cycled through.



6. Press the "-" key. The display will blink "daYS" for 3 seconds and then display the number of days since last regeneration.

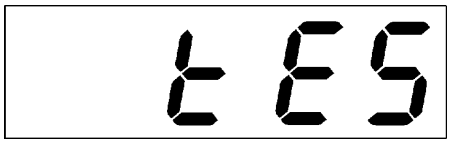


Note: Pressing the "+" key at any time brings back to manual cycling. Pressing "Status" will Exit the programming menu.

Board Diagnostics

To enter the circuit board test mode, follow the procedure listed below:

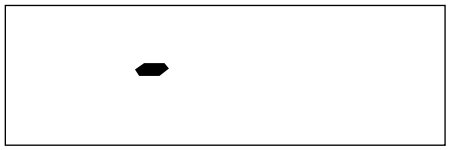
Service or Test Mode
Press and hold the "STATUS" key until "dIP 1" appears in the display. "dIP 1" will blink for 3 seconds and then the display will show the status of this option (SEr or tES). Toggle the feature with the "+" or "-" key.
Note: *Pressing "STATUS" after changing option to test mode will place the control in test mode. After testing is complete press and hold "STATUS" for 3 seconds to exit. Placing the unit in test mode will not change any of the programmed values. (Refer to the Service Manual for test menu).*



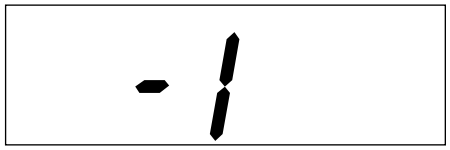
1. Press the status key. The software version will be displayed.

2. Press the status key. "tESt" will flash for 3 seconds, then all segments of the display will be lit.
   Note: If STATUS is pressed when "tESt" is flashing, it will proceed to the next step.

3. Press the status key. If a flow meter is plugged into the circuit board, a bar on the second digit of the display will be lit. The display will be blank if a flow meter is not plugged into the circuit board.



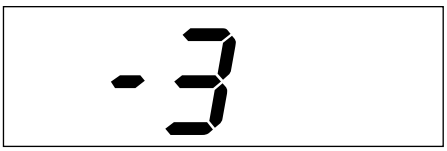
4. Press the status key. A "1" will appear on the display for 3 seconds.



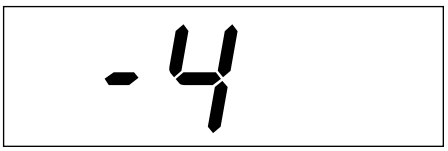
5. Press the "+" key. A "2" will appear on the display for 3 seconds and the motor will run. An "H" in the display means the motor homing switch is activated. A "P" on the display means the motor program switch is activated. Press the "+" key again and the motor will stop.

   Note: If the "+" key is not pressed again, the motor will stop turning after 30 seconds.

6. Press the "-" key. A "3" will appear on the display for 3 seconds.



7. Press the "REG" key. A "4" will appear on the display for 3 seconds.



8. A signal from the flow meter will cause the phone icon to flash. If a flow meter is connected to the circuit board, the bar will be displayed in steps 3-7.

9. Hold the status key for 3 seconds to return to the time of day. The motor will automatically energize to the home position. Note: The control will not "TIME OUT" when in the test mode.

Familiarize yourself with the replacement procedures and component parts thoroughly before attempting any repair.

> **⚠ WARNING: DISCONNECT ALL ELECTRICAL POWER TO THE UNIT BEFORE SERVICING. BYPASS THE UNIT AND RELIEVE SYSTEM PRESSURE BEFORE ATTEMPTING REPAIR.**

CIRCUIT BOARD

To replace the AccuSoft$_{TM}$ circuit board, refer to the parts list and proceed as follows:

1. Lift up the front cover of the control.
2. Remove all connected wire leads from the board.

> ***⚠ CAUTION: Grip all connections to the circuit board by the connecting terminals for assembly and disassembly. Failure to do so could result in damage to the wire leads or connecting terminals.***

3. Remove the circuit board from the retaining clips on the front cover.

> **⚠ CAUTION:** ***Do not touch any surfaces of the circuit board. Electrical static discharges may cause damage to the board. Handle the AccuSoft circuit board by holding only the edges of the circuit board. Keep replacement boards in their special anti-static bags until ready for use. Mishandling of the circuit board will void the warranty.***

4. The new circuit board can be installed by reversing the steps 1-3 above.

> **⚠ CAUTION:** ***The wire connectors must be connected to the circuit board properly. The wires must exit the plug-in connector opposite of the raised white base of the circuit board connector.***

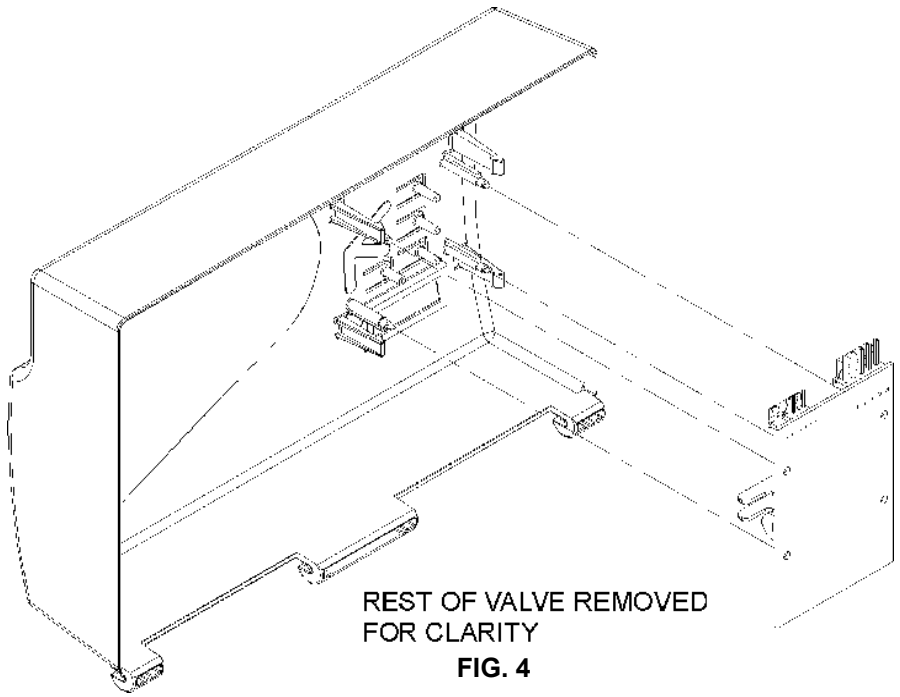


FIG. 4

Refer to Figure 5 for assembly and disassembly of the various valve components listed below.

DRIVE MOTOR ASSEMBLY

1. Remove the drive motor cam switches by removing the one screw holding the switches to the motor.
2. Remove the E-ring holding the drive motor cam to the camshaft with a flat tip screwdriver.
3. Lift the cam off the shaft.
4. Using a 1/4" hex driver, remove the bolt above the eductor piston assembly.
5. Loosen the two screws holding the yoke support plate and the motor to the control valve.
6. Remove the yoke support plate and yoke by gently pulling them down.
7. Fully remove the two screws holding the motor to the control. The motor will pull away from the control and the backplate will hang on the valve body.

NOTICE: *If the unit is equipped with a meter, it is recommended to unclip the meter cable from the meter body to allow backplate movement.*

NOTICE: *Care should be taken to not damage the brine piston if it is not going to be replaced. The brine piston will need to be twisted slightly in order to remove it from the motor die casting.*

This procedure can be followed in the reverse order to reassemble the motor to the control. When reassembling the scotch yoke, the yoke must slide into the yoke support plate prior to pushing the assembly up into the piston end and follower. Figure 6 shows proper assembly of the yoke into the support plate.

NOTICE: *The seal pack may need to be repositioned in order for the follower to be inserted into the yoke, using the motor and backplate to push the seal pack fully into the valve is helpful in aligning the yoke. Make sure that the follower is in the follower slot on the yoke, and that the end of the piston rod is held in the end of the yoke.*

NOTICE: *When attaching the yoke support plate be certain to push up on the plate until the two mounting screws bottom in the U-shaped channels of the support plate.*

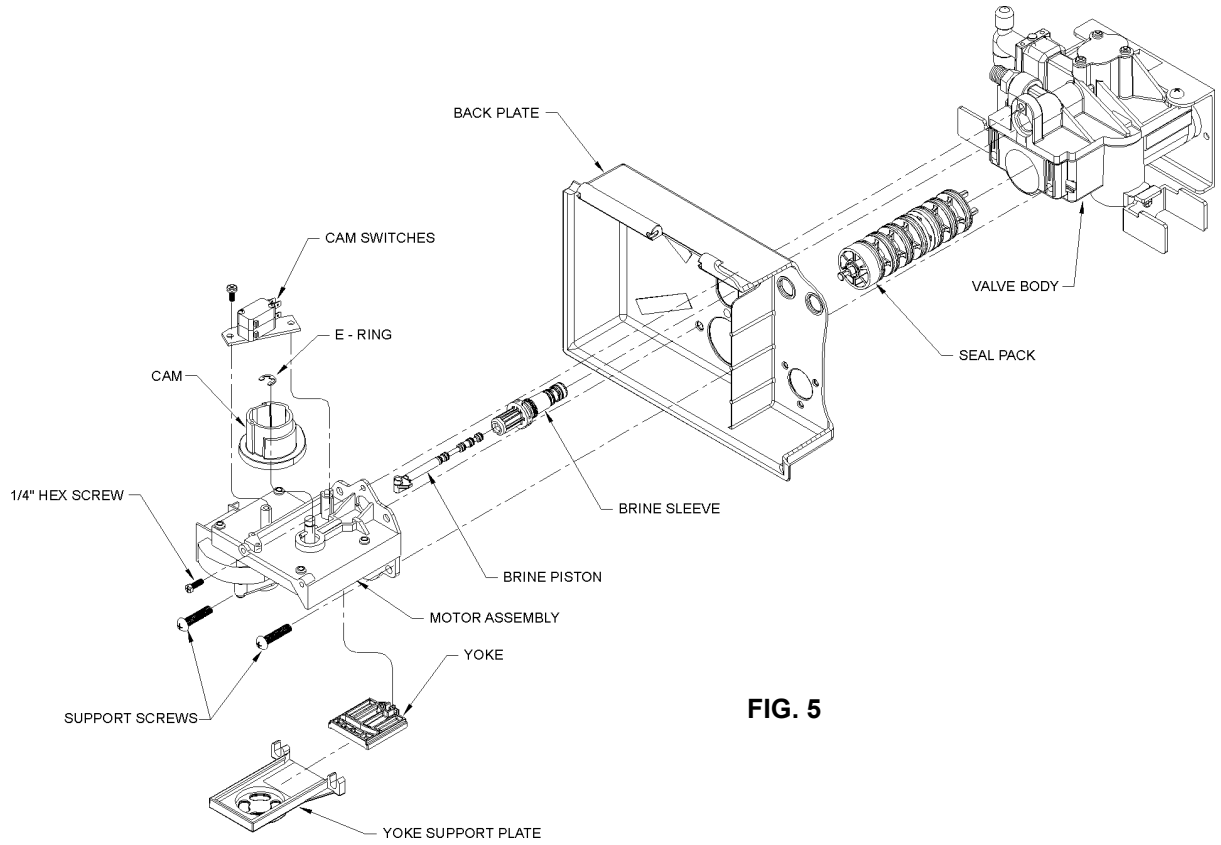


FIG. 5

SEAL PACK ASSEMBLY

Follow the instructions for replacing the drive motor assembly through step 7, then continue as follows:

1. With the drive motor and backplate set aside, firmly pull the seal pack assembly from the valve body.
2. Lightly lubricate the o-rings of the replacement seal pack with silicone grease.
3. Reverse the procedure for reassembly.

NOTICE: *Use only silicone grease; petroleum-based lubricants will cause the degradation of the rubber components.*

⚠ **CAUTION:** ***Do not twist the seal pack upon insertion. This can cause the outer o-rings to pinch, cut, or crimp.***

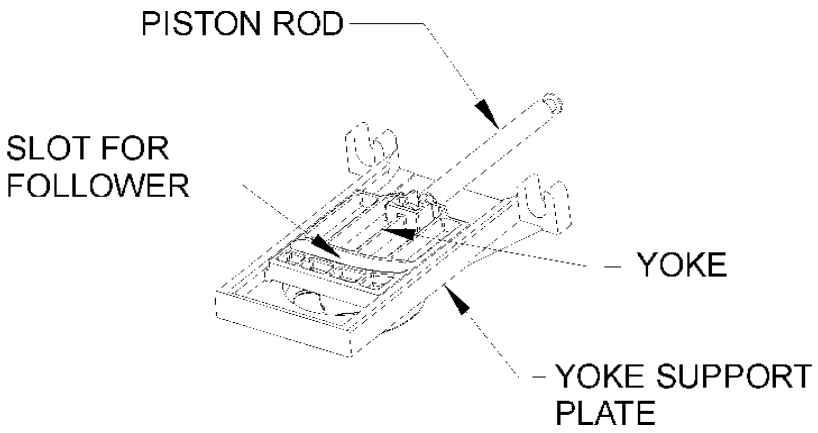


FIG. 6

EDUCTOR PISTON/EDUCTOR SLEEVE ASSEMBLY

Follow the instructions for replacing the drive motor assembly through step 7, then proceed as follows:

1. With the drive motor set aside, firmly pull the eductor piston & sleeve assembly from the valve body.
2. Lightly lubricate the o-rings of the replacement piston & sleeve assembly with silicone grease.
3. Reverse the procedure for reassembly.

NOTICE: *Use only silicone grease; petroleum-based lubricants will cause the degradation of the rubber components.*

NOTICE: *The eductor piston & sleeve assemblies are unique to the softener, filter, and Super S™ controls. Refer to the parts list to ensure that the proper assembly is used.*

EDUCTOR ASSEMBLY

Refer to Figure 7 and the following instructions for replacement of the eductor.

1. Remove the three screws and the eductor plate.
2. Remove the eductor screen by lifting it from the eductor body.
3. Remove the eductor body by grasping one of the projections with the pliers and gently pulling upward.
4. Reverse the procedure to reassemble. Be certain that the replacement eductor body contains the correct eductor nozzle.

TABLE 7 - Eductor Selection

Model	Nozzle Color	Nozzle P/N
8" Medallist	Blue	00446038
30 & 45 Medallist	Beige	00446039

BACKWASH FLOW CONTROL

Refer to Figure 7 and the following instructions for replacement of the backwash flow control:

1. Remove the drain elbow retaining clip from the valve body.
2. Pull the drain elbow from the valve body.
3. Remove the flow control from the valve body control and replace with a new flow restrictor.

NOTICE: *The number on the backwash flow control should face into the valve body.*

4. Reverse the procedure to reassemble. Be certain that the replacement is the correctly sized flow restrictor.

TABLE 8 - Backwash Flow Restrictor Selection

Model	Color & Number	P/N
8" Medallist	Black, #1	00331634
30 & 45 Medallist	Brown, #2	00331635

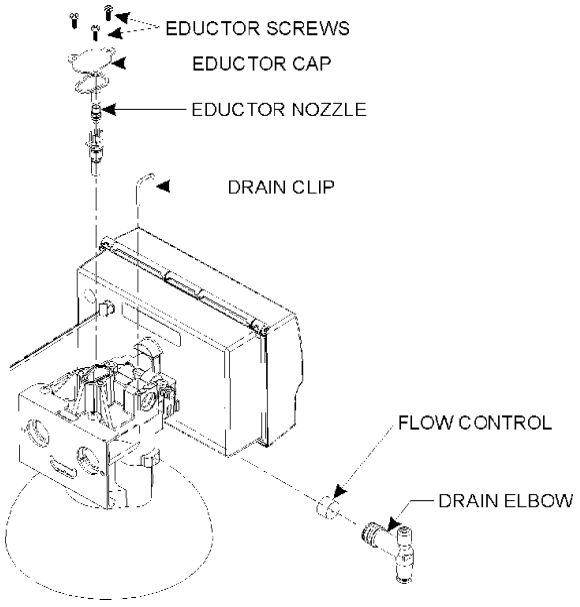


FIG. 7

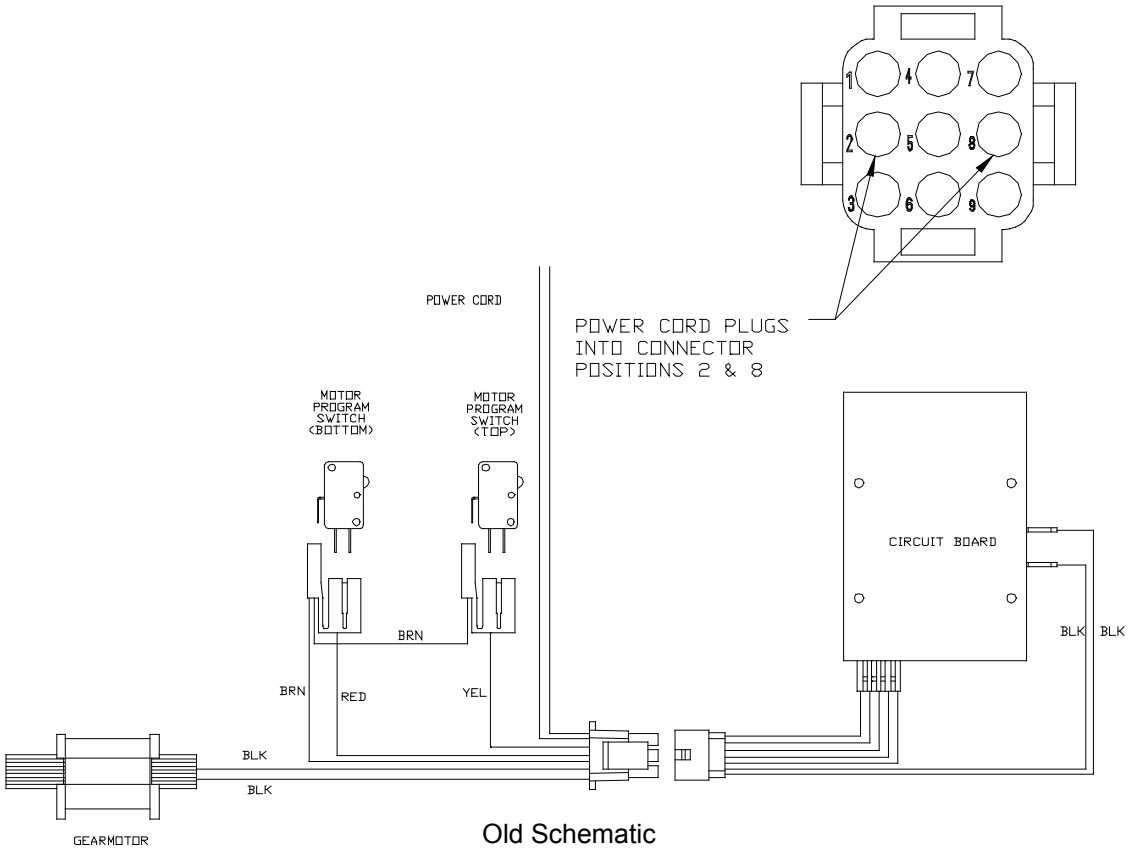
Troubleshooting Guide

PROBLEM	CAUSE	SOLUTION
1. Unit has blank display.	A. Unit has no power	A. Verify that unit is connected to a constant power source. (Not an outlet on a switch)
	B. Defective plug-in transformer	B. Replace plug-in transformer
2. Softener fails to automatically initiate a regeneration.	A. Electrical service to the unit has been disrupted.	A. Verify that unit is connected to a constant power source. (Not an outlet on a switch)
	B. Soft-Minder® meter not properly recording total gallons used. *The flow meter connection and operation can be verified using the test mode setting on the circuit board.*	B. Verify that meter cable is plugged into circuit board. Verify that meter cable is snapped into flow meter housing.
	C. Incorrect programming	C. Refer to the 'Programming' section and verify all settings.
3. Regeneration occurs at incorrect time.	A. Timer setting incorrect	A. Reset timer
	B. Timer flashing	B. Reset timer and verify that unit is connected to a constant power source.
	C. Circuit board set to immediate regeneration.	C. Set circuit board to delayed regneration. Refer to 'Programming the option settings'.
	D. Incorrect programming	D. Refer to the 'Programming' section and verify all settings.
4. Phone Icon is displayed as	A. Jammed seal pack or brine piston	A. Replace the seal pack or brine piston outlined in the 'Parts Replacement Guide' section.
	B. Defective cam microswitches	B. Replace cam microswitches
	C. Defective motor	C. Replace the motor as outlined in the 'Parts Replacement Guide' section.
5. Hard water to service *The root cause of hard water to service may also lead to problems such as Iron or Hardness bleed in softeners.*	A. Cul-Flo-Valv® is open or o-rings on Cul-Flo-Valv bypass stem are cut.	A. Close bypass valve or replace o-rings on bypass stem.
	B. Salt or Chemical storage tank is empty.	B. Add salt or chemical to storage tank and verify that proper level of salt or chemical is maintained.
	C. Eductor screen or nozzle plugged	C. Clean or replace eductor nozzle and/or screen.
	D. Incorrect programming. (Salt dosage too low for influent hardness)	D. Refer to 'Programming' section and verify that settings are correct.
	E. Insufficient water flowing to salt storage tank.	E. Verify that refill settings are correct, and clean the refill flow restrictor.
	F. Internal seal leak	F. Replace seal pack as outlined in the 'Parts Replacement Guide' section.
	G. Excessive water usage	G. Verify that programming is correct. For Time Clock units increase regeneration frequency.
	H. Unconditioned water in water heater tank.	H. Flush water heater to fill tank with conditioned water. Note: Follow water heater manufacturer's recommendation.

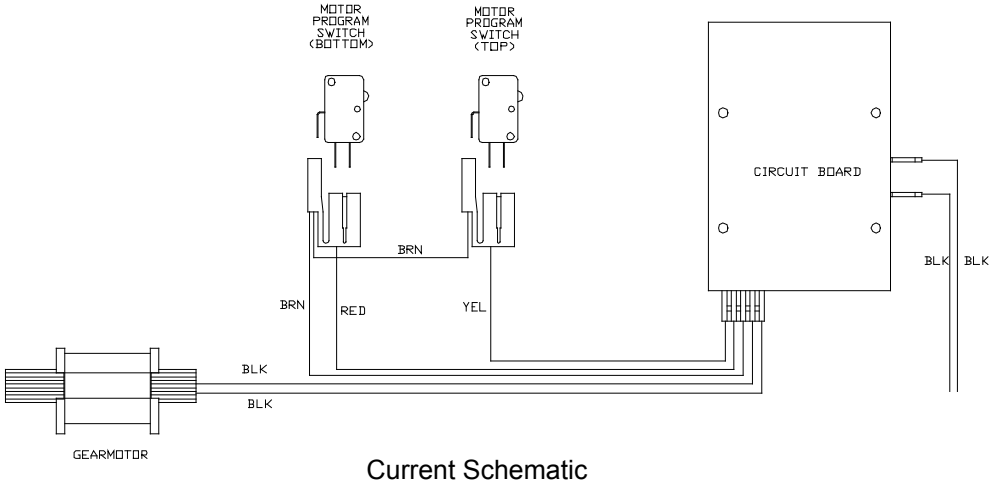
PROBLEM	CAUSE	SOLUTION
	I. Salt bridge	I. Break up salt bridge in brine tank. Do not try to break the salt bridge by pounding on the outside of the brine tank
6. Loss of water pressure	A. Inadequate mineral in media tank.	A. See problem 7 & 8.
	B. Control and/or resin bed plugged with debris or iron build-up.	B. Clean control and increase frequency of regenerations or length of backwash. Plant recondition if necessary.
	C. Inlet manifold plugged.	C. Remove control from tank and clean inlet manifold. Check if eductor screen/ nozzle is also plugged.
	D. Control plugged with foreign material broken loose from recent plumbing work.	D. Clean control.
7. Loss of mineral to drain	A. Improper drain line flow control	A. Ensure that the control has the proper drain line flow control. (See Table 8)
	B. Air in water system	B. Ensure that system has proper air eliminator control.
8. Mineral to service	A. Control connected to tank backwards	A. Verify that control is properly mounted to the tank. (White coupling on the right (inlet), black coupling on the left (outlet).
	B. Defective outlet manifold	B. Replace outlet manifold
9. Water in storage	A. Secondary shut-off (brine valve float) not properly set.	A. Refer to '"A" Dimension Charts/Refill Rates' to set the brine valve float dimension.
	B. Plugged drain line flow control. (Unit will not draw brine)	B. Clean drain line flow control.
	C. Plugged eductor system. (Unit will not draw brine)	C. Clean eductor screen and nozzle.
	D. Slow leak to brine line. Faulty eductor sleeve or piston.	D. Replace eductor sleeve and piston.
	E. Power outage while control was in refill position.	E. Verify that items A-D are not the cause the extra water in the storage tank.
10. Excessive water in salt storage tank. (Water above brine valve float)	A. Faulty brine valve; float shut-off failure. *When the brine valve is faulty, one of the items listed under problem 9 is also required in order to produce excessive water in the storage tank.*	A. Clean brine valve, replace stem seat, or replace brine valve.
11. Unit fails to refill storage tank.	A. Refill restrictor plugged	A. Clean or replace refill restrictor
	B. Air in brine line causes float to slam shut. (Float rod is rigid)	B. Verify that all tubing connections are properly assembled.
12. Unit fails to draw brine or chemical.	A. Drain line flow control is plugged.	A. Clean drain line flow control
	B. Plugged eductor system	B. Clean or replace eductor screen and nozzle.
	C. Line pressure too low	C. Increase line pressure to a minimum of 20 psi (140 kPa)
	D. Internal control leak	D. Replace seal pack and/or eductor sleeve/piston assembly.
	E. Drain line too long or restricted	E. Verify proper drain line length. See 'Flow Rate and Drain Line Charts'.
	F. Eductor is drawing air into system.	F. Verify that all tubing connections are properly assembled.

PROBLEM	CAUSE	SOLUTION
13. Unit uses an excessive amount of salt or chemical	A. Incorrect programming	A. Refer to the 'Programming' section and verify all settings.
	B. Excessive water in storage tank	B. Refer to problems 9 & 10.
14. Continuous flow to drain.	A. Internal seal pack leak.	A. Replace seal pack as outlined in the 'Parts Replacement Guide' section.
	B. Seal pack or brine piston jammed in position.	B. Replace the seal pack or brine piston as outlined in the 'Parts Replacement Guide' section.
	C. Power failure while unit was in regeneration.	C. Restore power to unit. Verify that unit is connected to a constant power source.
15. Salt water to service	A. Inadequate Brine/Rinse setting for desired salt dosage.	A. Refer to the 'Programming' section and verify all settings.
	B. Low water pressure lengthens brine draw time.	B. Increase line pressure to a minimum of 20 psi (140 kPa).
	C. Too much brine in the storage tank	C. Refer to problems 9 & 10.

Wiring Diagram



Old Schematic
Models Purchased Before 3/1/2002



Current Schematic
Models Purchased After 3/1/2002

CULLIGAN MEDALLIST SERIES™, 8" WATER CONDITIONER

EXTRA BRINE LINE

This column in the number of feet deducted from the allowable drain line length for each foot the brine line is extended beyond the standard 4-foot length.

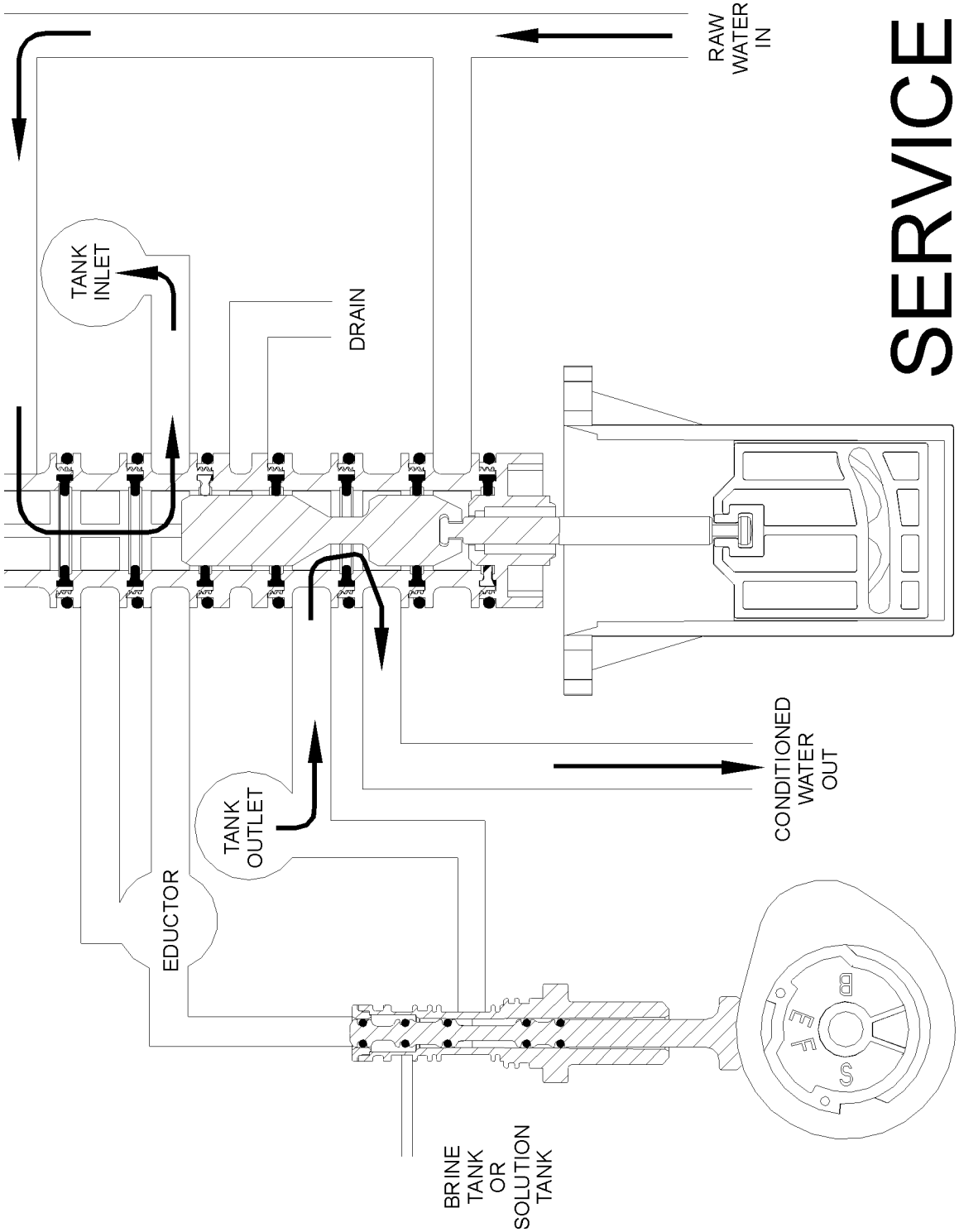
Min. Vac. Ht.	Back Wash gpm	Back Wash Sec./ Gal.	B/W Restric-tor No.	Rinse Rate gpm	Rinse Rate Sec./ Gal.	Fast Rinse Rate gpm	Fast Rinse Rate Sec./ Gal.	Eductor	Pres-sure psi	HEIGHT OF DRAIN DISCHARGE ABOVE FLOOR											Extra Brine Line
										4 in.	**1 ft.**	**2 ft.**	**3 ft.**	**4 ft.**	**5 ft.**	**6 ft.**	**7 ft.**	**8 ft.**	**9 ft.**	**10 ft.**	
				0.22	273				20												0.9
				Min.	Max.				25	33	27	17	7								1.2
									30	56	50	40	30	20	10						1.9
									35	74	68	58	48	38	28	18	8				2.1
									40	88	82	72	62	52	42	32	22	12			2.1
									45	100	94	84	74	64	54	44	34	24	14		2.2
									50	112	106	96	86	76	66	56	46	36	26	16	
									55	121	115	105	95	85	75	65	55	45	35	25	
									60	130	124	114	104	94	84	74	64	54	44	34	
									65	137	131	121	111	101	91	81	71	61	51	41	
19"	2.0	30	2	0.32	188	2.0	30	Blue	70	143	137	127	117	107	97	87	77	67	57	47	
				Avg.	Avg.				75	147	141	131	121	111	101	91	81	71	61	51	
									80	149	143	133	123	113	103	93	83	73	63	53	
									85	151	145	135	125	115	105	95	85	75	65	55	
									90	153	147	137	127	117	107	97	87	77	67	57	
									95	156	150	140	130	120	110	100	90	80	70	60	
									100	159	153	143	133	123	113	103	93	83	73	63	
									105												
									110												
				0.42	142				115												
				Max.	Min.				120												

SALT STORAGE ELEVATION

For each foot the salt storage tank is lowered below the floor on which the softener stands, it is necessary to deduct 8 feet of drain line from the allowable length shown on the chart. For each foot the salt storage tank is elevated above the floor on which the softener stands, the height of drain discharge can be raised 2 inches, or the total length of the drain line can be increased 4 feet. In either case, deduction must also be made for extra feet of brine line length in excess of the standard 4 feet. For this deduction, use column entitled, "EXTRA BRINE LINE".

CULLIGAN MEDALLIST SERIES™, 10" WATER CONDITIONER

Min. Vac. Ht.	Back Wash gpm	Back Wash Sec./ Gal.	B/W Restric-tor No.	Rinse Rate gpm	Rinse Rate Sec./ Gal.	Fast Rinse Rate gpm	Fast Rinse Rate Sec./ Gal.	Eductor	Pres-sure psi	HEIGHT OF DRAIN DISCHARGE ABOVE FLOOR											Extra Brine Line
										4 in.	**1 ft.**	**2 ft.**	**3 ft.**	**4 ft.**	**5 ft.**	**6 ft.**	**7 ft.**	**8 ft.**	**9 ft.**	**10 ft.**	
				0.42	142				20	5											0.9
				Min.	Max.				25	18	12										1.0
									30	44	38	28	18								1.1
									35	62	56	46	36	26	16	6					1.2
									40	78	72	62	52	42	32	22	12				1.4
									45	93	87	77	67	57	47	37	27	17	7		1.6
									50	103	97	87	77	67	57	47	37	27	17	7	1.8
									55	110	104	94	84	74	64	54	44	34	24	14	2.0
									60	117	111	101	91	81	71	61	51	41	31	21	2.0
									65	122	116	106	96	86	76	66	56	46	36	26	2.1
19"	3.5	17	3	0.75	80	3.5	17	Beige	70	129	123	113	103	93	83	73	63	53	43	33	2.2
				Avg.	Avg.				75	133	127	117	107	97	87	77	67	57	47	37	2.3
									80	138	132	122	112	102	92	82	72	62	52	42	2.4
									85	142	136	126	116	106	96	86	76	66	56	46	2.5
									90	145	139	129	119	109	99	89	79	69	59	49	2.7
									95	147	141	131	121	111	101	91	81	71	61	51	2.9
									100	149	143	133	123	113	103	93	83	73	63	53	3.0
									105	151	145	135	125	115	105	95	85	75	65	55	3.0
									110	153	147	137	127	117	107	97	87	77	67	57	3.1
				1.08	55				115												
				Max.	Min.				120												


SERVICE
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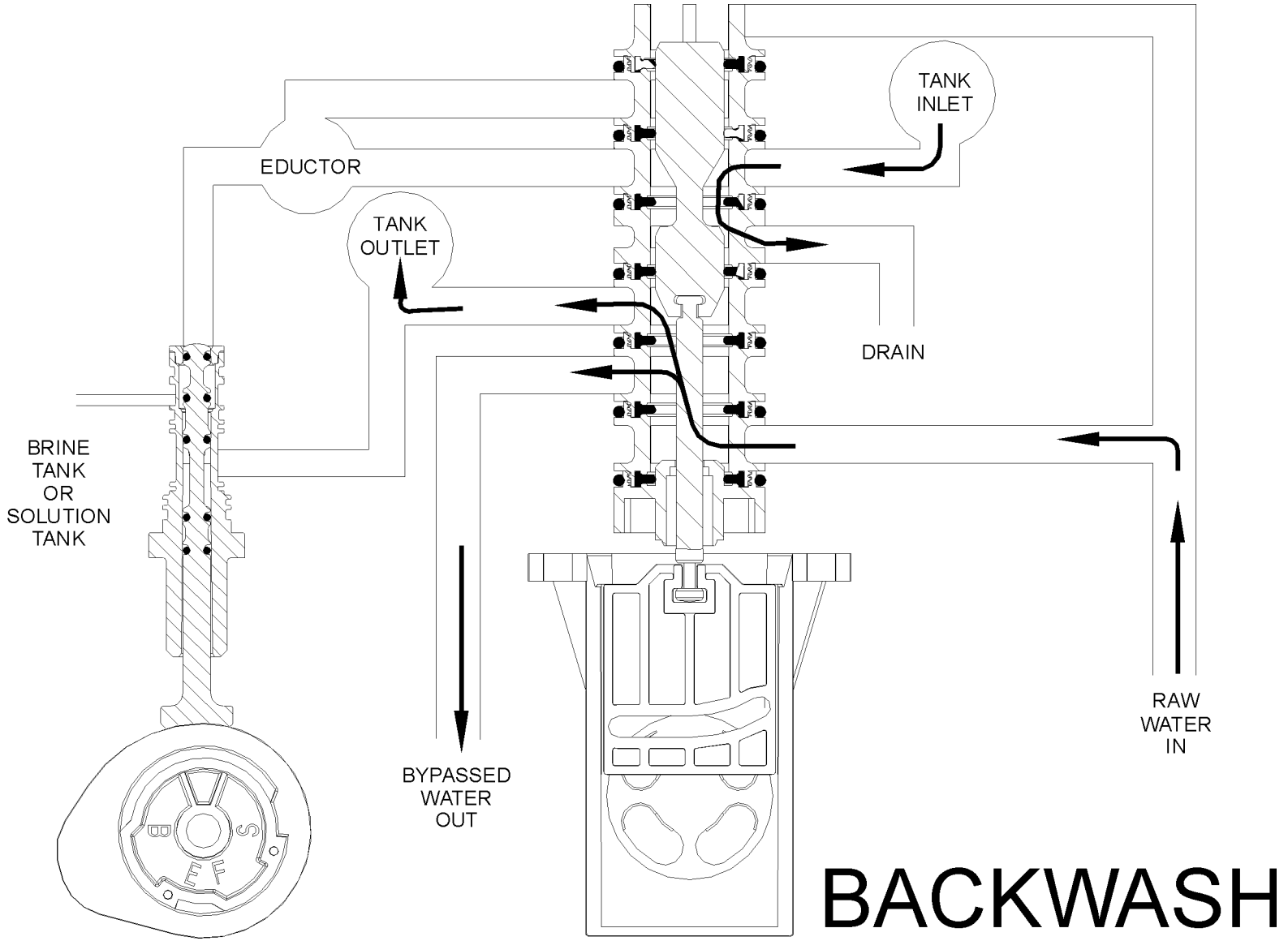
DRAIN
CONDITIONED WATER OUT
TANK OUTLET
EDUCTOR
BRINE TANK OR SOLUTION TANK
B
F
S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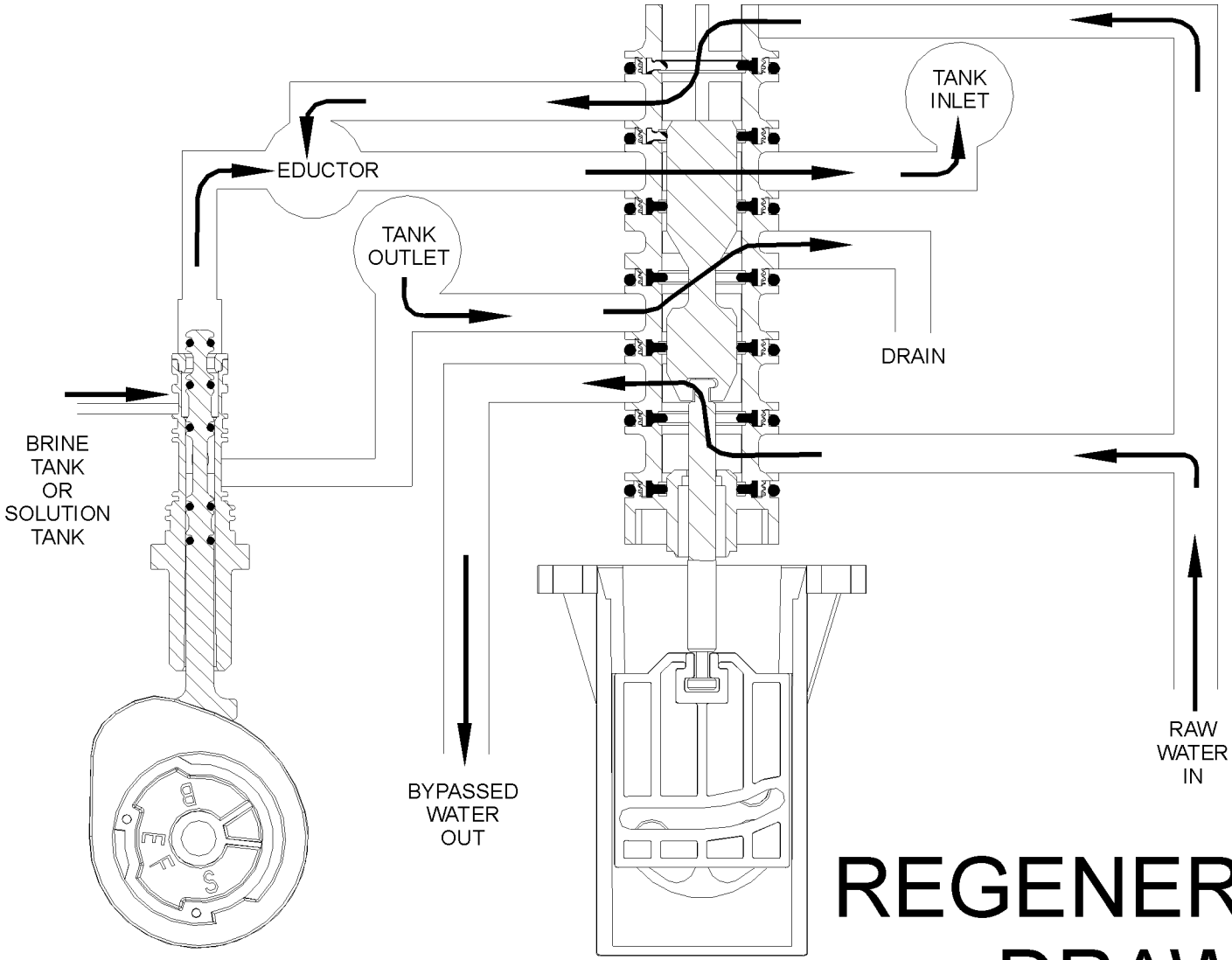
WATER
IN
BACKWASH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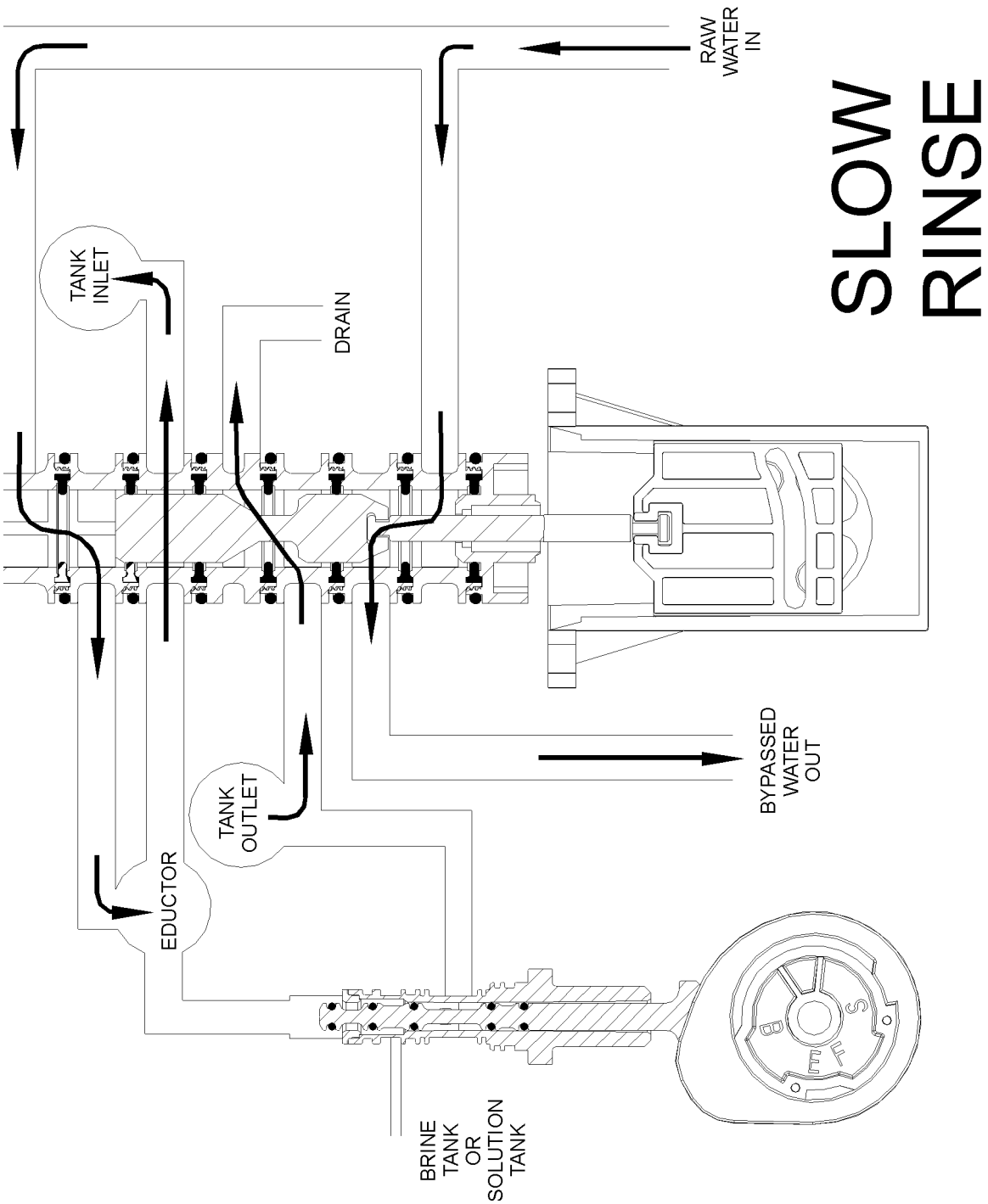
WATER
OUT
RAW
WATER
IN
REGENERANT
DRAW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TANK
INLET
DRAIN
BYPASSED
WATER
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BRINE
TANK
OR
SOLUTION
TANK
B
E
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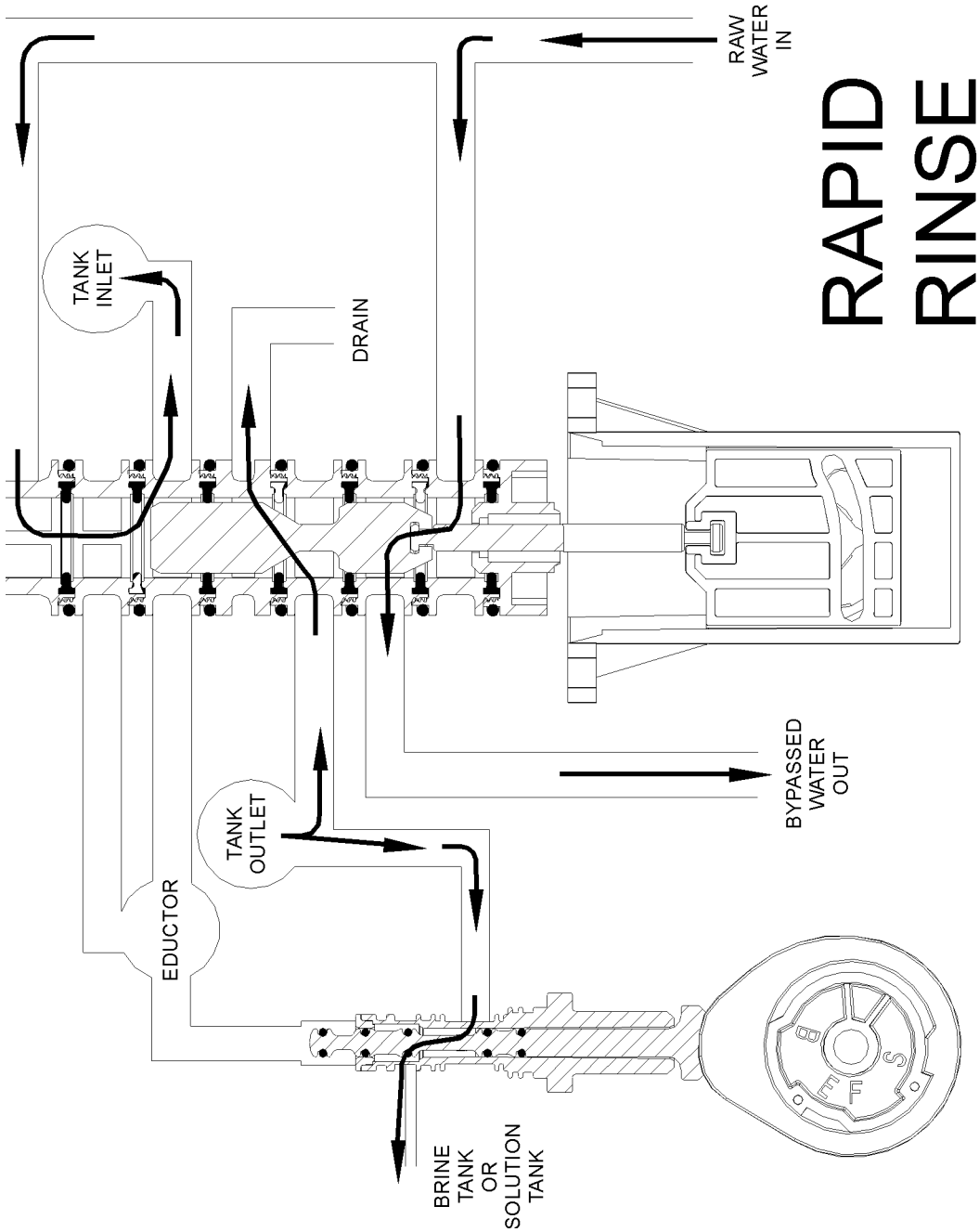
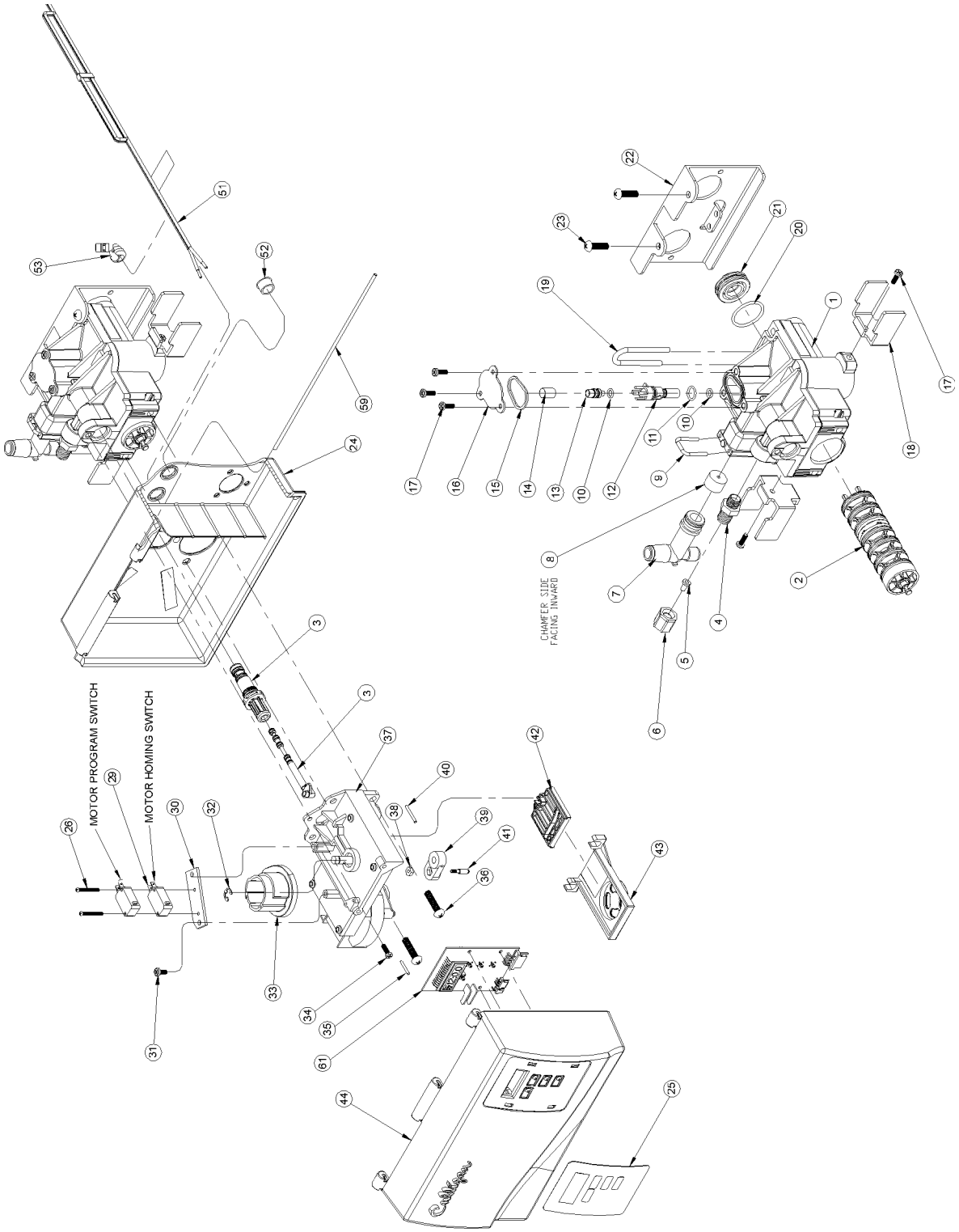
S

RAPID RINSE & REFILL



Control Valve Parts List



Item	Part No.	Description
—	01014042	Control Valve Assembly - Medallist
1	00449865	Control Valve
‡ 2	01013083	Seal Pack Assembly
‡ 3	01013606	Eductor Sleeve and Eductor Piston Assembly
‡ *	P0447986	O-Ring, Eductor Sleeve, Small O-Ring (25/Kit)
‡ *	P0308407	O-Ring, Eductor Sleeve, Large O-Ring (25/Kit)
‡ *	P0448750	Screen, Eductor Sleeve (10/Kit)
‡ *	P0447987	O-Ring, Eductor Piston (10/Kit)
4	P0443291	Connector Brine Line (25/Kit)
5	P0303192	Insert, PP, 0.312" (25/Kit)
6	P0-3031-93	Nut, PP, 0.312" (25/Kit)
7	00446835	Drain Elbow Assembly w/O-Ring
8	P0331634	Backwash Restrictor, #1, 8" Tanks (10/Kit)
	P0331635	Backwash Restrictor, #2, 10" Tanks (10/Kit)
9	P0447387	Retainer, Drain Elbow (25/Kit)
‡ 10	P0308438	O-Ring, Eductor Nozzle and Throat (10/Kit)
‡ 11	P0308437	O-Ring, Eductor Throat (25/Kit)
‡ 12	00401248	Eductor Throat w/O-Rings
‡ 13	00446038	Eductor Nozzle - Blue, 8" Tanks
	00446039	Eductor Nozzle - Beige, 10" Tanks
14	P0445269	Eductor Screen (10/Kit)
‡ 15	00445797	Gasket
16	00401022	Eductor Port Cover
17	P0448687	Screw (25/Kit)
18	01005130	Bracket
19	00448128	Retainer, Rear Body Plug
‡ 20	P0444914	O-Ring, Rear Seal (10/Kit)
21	00448126	Rear Body Plug
22	01004689	Cul-Flo Bracket
23	P0318383	Screw (10/Kit)
24	01014036	Back Plate
25	01882288	Timer Label
26	P0448686	Screw (25/Kit)

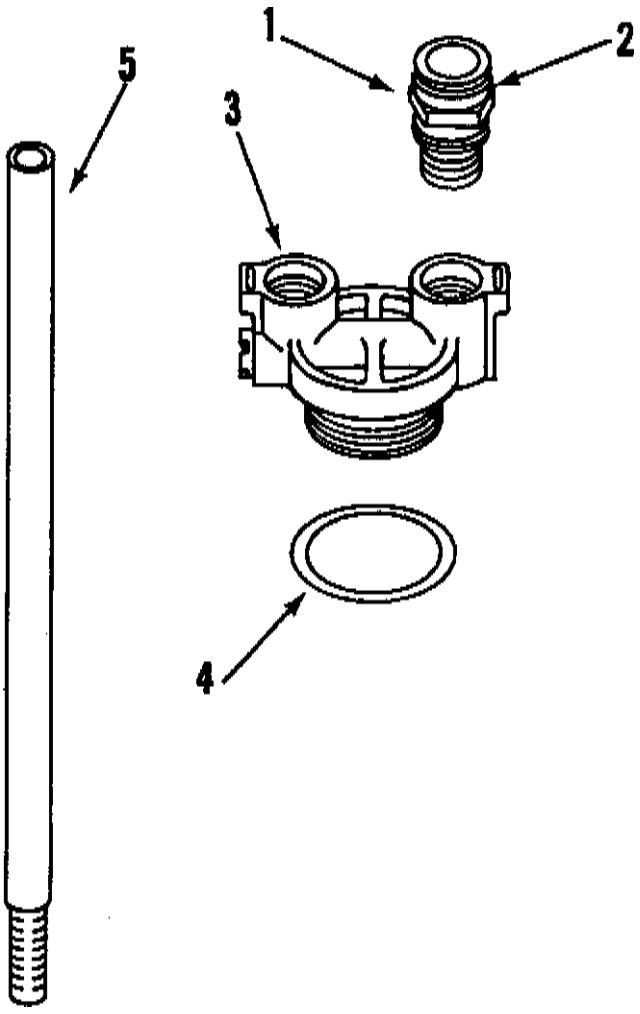
Item	Part No.	Description
‡ 29	01003244	Switch
30	00401040	Switch Bracket
31	P0318455	Screw (25/Kit)
32	P1013043	Retaining E-Ring (10/Kit)
33	01013031	Cam
34	P1001784	Screw (25/Kit)
35	00443559	Roll Pin
36	P0318452	Screw (25/Kit)
37	01014179	Drive Motor & Bracket Assembly 24V/60Hz
38	00318354	Nut
39	00445221	Bellcrank
40	00445246	Roll Pin
41	01012649	Follower
42	01012648	Yoke
43	01012647	Bracket
44	01014037	Cover
51	01014083	Power Cord (Quick Disconnect)
	01014734	Power Cord (Direct to Circuit Board)
52	01006498	Plug, Snap-In
53	P1000372	Strain Relief (25/Kit)
59	01014038	Hinge, Circuit Board Plate
60	00441410	Screw
61	01014172	Circuit Board (25/Kit)
*	01012956	Wall Mount Transformer
*	01012905	Flow Meter Assembly
*	01014076	Wire Harness, Switches & Motor (Quick Disconnect)
*	01014074	Wire Harness, Circuit Board (Quick Disconnect)
*	01014787	Harness (Motor & Switches to Circuit Board)
*	P0451701	Hose Clamp, Drain (25/Kit)
*	01013839	Back-up Battery

‡ Recommended Spare Parts
* Not Illustrated

Conditioner Tank Parts List

Item	Part No.	Description
	00440821	Tank Assembly, 8", Complete
	01014889	Tank Assembly, 10" x 40", Complete
	01014890	Tank Assembly, 10" x 54", Complete
	00441897	Replacement Tank, 8", Empty
	01014891	Replacement Tank, 10" x 40", Empty
	01014892	Replacement Tank, 10" x 54", Empty
1	00443282	Coupling (less O-rings)
‡2	P0333957	O-ring (4 required)
3	00444808	Adapter
‡4	00440052	O-ring
5	01000819	Outlet manifold, 8"
	01012828	Outlet manifold, 10" x 40"
	01012829	Outlet manifold, 10" x 54"
*	P0308427	O-ring (outlet manifold)

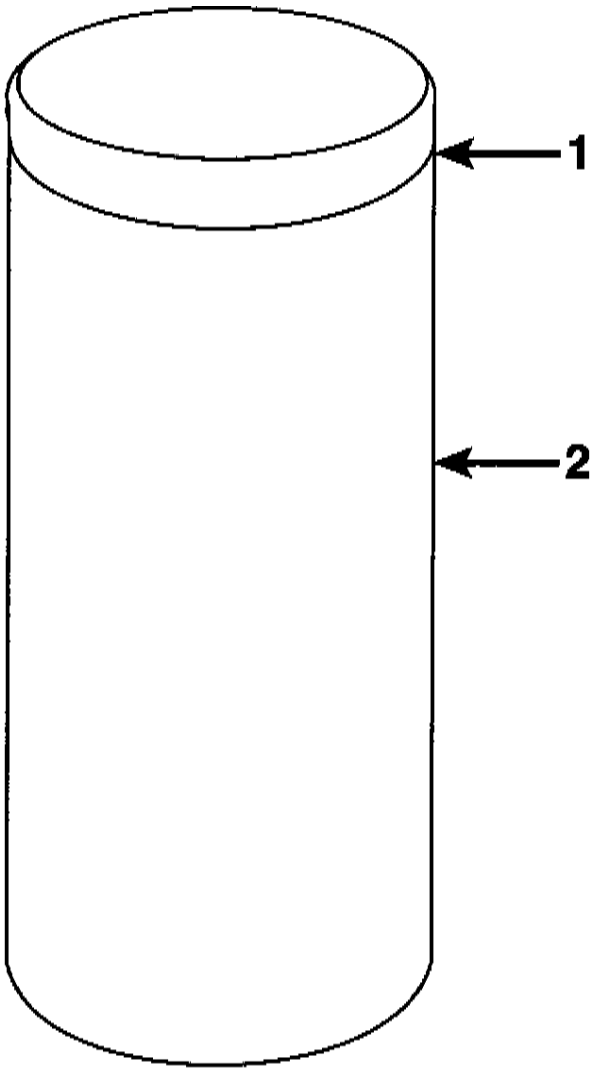
* Not Illustrated



Salt Storage Tank Parts List

Item	Part No.	Description
—	00441390	Brine System, 160 lb. Replacement
—	00441886	Brine System, 250 lb. Replacement
—	01004875	Brine System, 250 lb. Replacement Less Salt Plate
—	00441887	Brine System, 375 lb. Replacement
—	01004876	Brine System, 375 lb. Replacement Less Salt Plate
† 1	01004870	Gold Band
2	00303993	Cover with Band, 250 lb.
—	01014942	Cover 250 lb. Less Gold Band
—	00401042	Cover with Band, 160 lb.
—	00303980	Cover with Band, 375 lb.
—	01014943	Cover 375 lb. Less Gold Band
3	00304010	Tank Only, 250 lb.
—	00441391	Tank Only, 160 lb.
—	00303975	Tank Only, 375 lb.

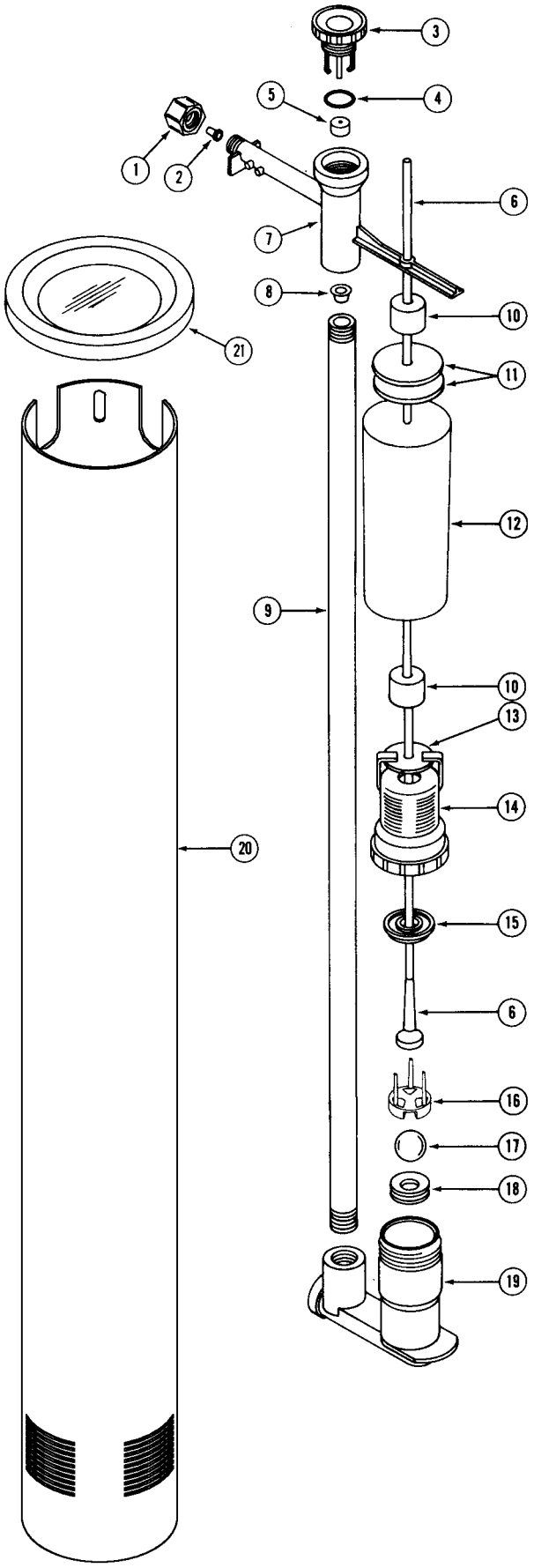
† Order by footage required



Brine Valve Parts List

Item	Part No.	Description
—	00441888	Brine Valve Assembly
—	00401141	Brine Valve Assy., Brine Tank, 160 lb.
1	00303193	Plastic Nut, 5/16-inch
2	00303192	Plastic Insert
3	00440796	Refill Cap
‡4	00308407	O-ring
‡5	00401622	Flow Restrictor, No. 5, 0.45 gpm (170 lpm)
6	00340014	Stem Seat Assy., 250 lb. (114 kg) & 375 lb. (170 kg)
7	00440795	Refill Body
‡8	00332528	Hat Screen
9	00223435	Plastic Pipe, 1/4-inch NPT x 35 inches long, 250 lb. (114 kg) & 375 lb. (170 kg)
10	00304703	Float Retainer (2 required)
11	00304718	Float Weight, Stainless Steel (2)
12	00444873	Float
13	00332072	Screen Top Seal
14	00444664	Filter Screen Cap
‡15	00444496	Stem Seat
16	00447392	Insert
17	00447781	Air Eliminator Ball
‡18	00304804	Ball Seat
19	00541821	Float Valve Body with Ball Seat
	00541834	Float Valve Body with Ball Seat, 150 lb. Brine Tank
20	01004901	Brine Valve Chamber, 250 lb. (114 kg) & 375 lb. (170 kg) Salt Storage Tank
	00-4413-92	Brine Valve Chamber, 160 lb.
21	00-3046-06	Cap, Brine Valve Chamber
*	00-4463-88	Screw, St. Steel, Brine Valve Chamber
*	00-4463-89	Nut, St. Steel, Brine Valve Chamber

* Not Illustrated
‡ Recommended Spare Parts



Materials & description: 8-1/2 x 11, 40 page book, saddle stitched, three hole punched - Prints black ink on 20# white

LET	CHANGE	BY	APRVD	DATE
A	DCO 1610	TPD	JB	10/19/00
B	DCO 2882	SMP	MW	9/7/01
C	DCO 3594	LR	JS	06/05/02
D	DCO 4625	LR	JS	09/17/02

This page contains materials and DCO information. IT DOES NOT PRINT AS PART OF THE DOCUMENT!